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Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI AUGUST 7, 1918 No. 1

REGULATIONS FOR STOCKYARDS PROHIBIT DECEPTIVE DEALING

Excessive Charges Provided Against; Licenses Are Required

Secretary of Agriculture to Administer Provisions Through Bureau of Markets; Interested Persons Consulted

General regulations under which stockyards will operate were signed by the President July 26. They provide against extortionate or excessive charges for yardage and commission; require stockyards to maintain adequate facilities for handling live stock offered by stockmen, including labor, feed, and water; and prohibit unfair dealing, combination, or deceptive practices in buying and selling live stock. The circulating of misleading market information tending to affect prices is also covered by the regulations.

Stockyards, commission men, traders, order buyers, and others handling stock in, or in connection with, stockyards are required to secure licenses in accordance with the President's proclamation of June 18 and to operate under the rules and regulations, which will be administered by the Secretary of Agriculture through the Bureau of Markets. Country stock buyers and shippers who are not engaged in the business of buying and selling at licensed stockyards are not subject to license.

Suggestions Received.

The general regulations have been made after consultation with the Agricultural Advisory Committee, stockmen, and trade interests, says a statement from the Department of Agriculture, which sent out 3,000 copies of the preliminary draft of the regulations to interested persons and received suggestions from many sources before issuing the final regulations, which are now being published by the department.

Stockyards must keep records, as required by the Secretary of Agriculture, of daily receipts, shipments, and local disposition of live stock, make reports when required, and furnish true copies of all existing and proposed contracts with other establishments and changes therein relating to the handling of live stock in connection with such stockyards. The Chief of the Bureau of Markets has been designated by the Secretary of Agriculture to enforce the provisions of the regulations. It is contemplated that market supervisors will be stationed at the principal markets and in regional offices.

Text of Regulations

Regulation 1.—Definitions.

SECTION 1. Words used in these regulations in the singular form shall be deemed to import the plural, and vice versa, as the case may demand.

SEC. 2. For the purpose of these regulations, unless the context otherwise require, the following terms shall be construed respectively to mean:

Paragraph 1. *Act.*—Act of Congress approved August 10, 1917, entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel."

Par. 2. *Proclamation.*—The President's proclamation relating to stockyards, issued on June 18, 1918, under the act.

Par. 3. *Stockyards.*—Every place, establishment, or facility, commonly known as stockyards, conducted or operated for compensation or profit, consisting of pens or other inclosures, and their appurtenances, in which live cattle, sheep, swine, or goats are received, held, or kept for sale, feeding, watering, or shipment.

Par. 4. *Live stock.*—Live cattle, sheep, swine, or goats.

Par. 5. *Person.*—Individual, partnership, association, or corporation.

Par. 6. *Licensee.*—A person licensed under the proclamation.

Par. 7. *Stockyards licensee.*—A person licensed under the proclamation to conduct or operate stockyards.

Par. 8. *Commission man.*—A licensee engaged in the business of receiving on consign-

(*Continued on page 2.*)

PUT up nest boxes and get the constant, costless attention of birds. They help stave off the expensive attentions of the tree surgeon.

PRESIDENT MAKES AVAILABLE $5,000,000 TO AID FARMERS

Money To Be Loaned In Western Regions That Have Suffered

Primary Object Is to Assist Needy Men Over Time of Stress—Increasing Food Supply of Nation—Limits To Individual Sums

The following statement was given out by the Treasury Department and the Department of Agriculture July 29:

Acting upon the urgent representations that many wheat growers in certain sections of the West who have lost two successive crops by winter killing and drought, have exhausted their resources and may be compelled to forego fall planting and, in some cases, to abandon their homes unless immediate assistance is extended, the President on Saturday, July 27, placed at the disposal of the Treasury Department and the Department of Agriculture, $5,000,000 to enable them to furnish aid to that extent. The two departments are already actively at work formulating plans for making loans under this authorization, and complete details will be announced within the next few days and operations begun.

It may be stated generally that the Federal land banks in the districts affected will be designated by the Secretary of the Treasury as the financial agents of the Government to make the loans and to collect them. The Department of Agriculture, through its special officers, including the county agents, will ascertain the needs of the individual farmers and determine the feasibility of the planting.

For Farmers Who Have Suffered.

The primary object of this fund is not to stimulate the planting of an increased fall acreage of wheat or rye in the severely affected drought areas, or even necessarily to secure the planting of a normal acreage, but rather to assist in tiding the farmers over the period of stress, to enable them to remain on their farms, and to plant such an acreage as may be determined to be wise under all the conditions, with a view to increase the food supply of the Nation and to add to the na-

(*Continued on page 16.*)

REGULATIONS FOR STOCKYARDS PROHIBIT DECEPTIVE DEALING

(*Continued from page 1.*)

ment, buying, or selling live stock in or in connection with stockyards for a commission or fee.

Par. 9. *Order buyer.*—A licensee engaged in the business of purchasing for another person live stock in or in connection with stockyards.

Par. 10. *Trader.*—A licensee, other than a commission man or an order buyer, engaged in the business of handling or dealing in live stock in or in connection with stockyards including any person commonly known as a speculator or a scalper.

Par. 11. *Secretary.*—Secretary of Agriculture of the United States.

Par. 12. *Bureau of Markets.*—Bureau of Markets of the United States Department of Agriculture.

Par. 13. *Regulations.*—Rules and regulations prescribed pursuant to the proclamation.

Regulation 2.—Administration.

SECTION 1. The Chief of the Bureau of Markets shall perform for and under the supervision of the Secretary such duties as may be required in enforcing these regulations.

Regulation 3.—General Requirements.

SECTION 1. Licenses required pursuant to the proclamation shall be prepared by the license division, United States Food Administration, shall have the signature of the Secretary affixed, and shall not be transferable.

SEC. 2. Each licensee shall give to the Chief of the Bureau of Markets or any other duly authorized agent of the Secretary at such time, in writing or otherwise, and with or without oath or affirmation, as such agent may require, any information concerning the business of the licensee. Each licensee shall from time to time make general or special written reports concerning his business when requested by the Chief of the Bureau of Markets, on blanks furnished by him for the purpose.

SEC. 3. Each licensee shall during ordinary business hours permit any representative of the Secretary of Agriculture designated by him for the purpose to enter the place of business of such licensee and inspect any and all property stored or held in possession or under the control of the licensee, and all records pertaining to the business of such licensee. All necessary facilities for such inspection shall be extended to such representative by the licensee, his agents and servants. Such representative shall be the President's duly authorized agent for the purpose of this regulation.

SEC. 4. Each licensee shall keep such records as will readily disclose his transactions as a licensee and as will make practicable the verification of all information given by him under these regulations. Each licensee shall adopt and use such forms of records as may be prescribed for his business from time to time by the Secretary.

SEC. 5. Licensees shall report in writing to the Chief of the Bureau of Markets, within 10 days thereafter, any change of address or in the management, control, ownership, or character of the business of such licensee.

SEC. 6. No agent or employee of the United States shall, without the consent of the licensee concerned, divulge or make known in any manner while he is such agent or employee or thereafter, except to such other agents or employees of the United States as may be required to have such knowledge in the regular course of their official duties or except in so far as he may be directed by the Secretary or by a court of competent jurisdiction, any facts or information regarding the business of any licensee which may come to the knowledge of such agent or employee through any examination or inspection of the business or accounts of the licensee or through any information given by the licensee pursuant to these regulations.

SEC. 7. A licensee shall not make or exact any unjust, exorbitant, unreasonable, or discriminatory and unfair commission, profit, or charge for buying, selling, receiving, holding, feeding, watering, shipping, or otherwise handling or dealing in live stock in or in connection with stockyards.

SEC. 8. A licensee shall not buy, contract for, hold, sell, or otherwise handle or deal in any live stock in or in connection with stockyards, or conspire, combine, agree, or arrange with any other person, for the purpose of unreasonably depressing or enhancing the market price of, or restricting the supply of, or monopolizing or attempting to monopolize, either locally or generally, any such live stock.

SEC. 9. Each licensee shall exercise special care in yarding, feeding, weighing, or otherwise handling live stock in or in connection with stockyards, to prevent avoidable shrinkage, injury, or death of live stock or waste of feed.

SEC. 10. A licensee shall not engage in any discriminatory and unfair or deceptive practice or device in handling or dealing in live stock in or in connection with stockyards.

SEC. 11. A licensee shall not make, issue, or circulate any false or misleading representation tending to depress or enhance the price of any live stock. The issuance or making public of market quotations or any statements to any person regarding the price at which any live stock is being sold, which quotations or statements can not be verified from the records of such licensee or of other licensees or from an authorized governmental or other reliable source, shall be construed as making such a false or misleading representation.

SEC. 12. A licensee shall not knowingly transact any business involving live stock in or in connection with stockyards with any person whose license for the transaction of such business is suspended or has been revoked under the act.

SEC. 13. Each licensee shall observe such requirements governing the classification and dockage of live stock as may be prescribed from time to time by the Secretary.

Regulation 4.—Stockyards.

SECTION 1. In addition to other necessary records, complete and accurate records of daily receipts, shipments, and local disposition of live stock shall be kept by all stockyards licensees.

SEC. 2. Each stockyards licensee shall provide and maintain adequate facilities and labor for handling, feeding, and watering promptly and efficiently the live stock usually offered to him in the course of his business.

SEC. 3. All feed supplied by a licensee to live stock in stockyards shall be fit for feed, and shall be sold and accounted for by actual or carefully estimated weight at a reasonable price.

SEC. 4. Sufficient weighing facilities must be provided in all stockyards to prevent unreasonable delays in weighing live stock when sold, and all scales so used must be maintained in such condition and so operated as to insure accurate weights.

SEC. 5. Each stockyards licensee shall submit to the Chief of the Bureau of Markets as soon as practicable true copies of all existing and proposed contracts and changes therein between such licensee and packing, rendering, serum, fertilizer, and other establishments relating to the handling of live stock in or in connection with the stockyards of such licensee.

SEC. 6. A stockyards licensee shall not discriminate unfairly in the allotment of pens, alleys, or buildings for the yarding or handling of live stock, or in the assignment of sites for the erection of packing, rendering, and other establishments or otherwise in the services and facilities of his stockyards.

Regulation 5.—Commission Men, Order Buyers, and Traders.

SECTION 1. Each commission man, order buyer, and trader shall so regulate his orders for feed and arrangements for the feeding, watering, and yarding at stockyards of live stock handled by him that there shall be no avoidable loss to the owner or other person for whom such live stock is handled through carelessness, wastefulness, or delay on the part of such licensee.

SEC. 2. Each commission man shall disclose in accounting to the owner or con-

(*Continued on page 3.*)

SELECT SEED CORN IN FALL TO BRING BIG 1919 YIELDS

Shortages This Year Show Necessity of Being Prepared Next Spring

Home-Grown Seed of Proved Worth Best for Planting—Avoid Large Ears on Single Stalks—Use of Heat in Drying

Shortage of good seed corn in many parts of the Northern States last spring emphasizes the importance of being prepared next year. Preparation should begin now, for the only proper way to select seed corn is from the standing stalks as soon as the corn matures and before the first hard freeze, say specialists of the United States Department of Agriculture. Select plenty of seed—enough for your own needs, for replanting if necessary and to supply your less thrifty neighbors who may wait until spring to take their chances of getting good seed from the crib. Well-chosen, home-grown seed of varieties of proved worth in the community, properly dried immediately after it has been gathered and carefully preserved until planting time, produces the best yields.

Use Seed-Picking Bags.

As soon as the crop ripens, says the department, go through the field with seed-picking bags, and husk the ears from the stalks that have produced the best corn without having had special advantages, such as space, moisture, or fertility. Avoid the large ears on stalks standing singly with an unusual amount of space around them. Preference should be given the plants that have produced most heavily in competition with a full stand of less productive plants. Late-maturing plants with ears which are heavy because of an excessive amount of sap should be ignored. Sappiness greatly increases the weight and is likely to destroy the quality.

Advantage of Short Stalks.

In the Central and Southern States, all other things being equal, short, thick stalks are preferable. Short stalks are not so easily blown down and permit thicker planting. Thick stalks are not so easily broken down, and in general, are more productive than slender ones. The tendency for corn to produce suckers is hereditary. Other things being equal, seed should be taken from stalks that have no suckers.

Immediately after the seed corn is gathered, the husked ears should be put in a dry place where there is free circulation of air and placed in such a manner that the ears do not touch each other. This is the only safe procedure. Good seed is repeatedly ruined because it is thought to be already dry enough when gathered. Many farmers believe that their autumns are so dry that such care is unnecessary. Seed corn in every locality gathered at ripening time will be benefited by drying as suggested. If left in the husk long after ripening it may sprout or mildew during warm wet weather or become infested with weevils. The vitality of seed is often reduced by leaving it in a sack or in a pile for even a day after gathering. During warm weather, with some moisture in the cobs and kernels, the ears heat or mildew in a remarkably short time.

The best possible treatment immediately after gathering is to string the ears. Ordinarily the best place to hang strings of ears is in an open shed or loft. Wire racks are more convenient and in the end cheaper than binder twine. Such racks may be made from electrically welded lawn fencing. The cutting of the fencing into seed-corn racks is done without any waste.

Using Heat to Dry Ears.

Only during unusually damp weather at seed-gathering time will fire be necessary to dry the seed. If heat is employed in a poorly ventilated room it will do the seed ears more injury than good. If used, the fire should be slow, long continued, and below the seed ears, with good ventilation above them.

After hanging in the shed or lying on the racks for two months the seed ears should be as dry as a bone and contain less than 10 per cent of moisture. They can remain where they dried or be stored in mouse-proof barrels, boxes, or crates during the winter, but in either case they must not be exposed to a damp atmosphere, for they will absorb moisture and be injured. Some farmers place the thoroughly dried seed ears in the center of a wheat bin and fill the bin with loose, dry wheat.

Precautions Against Insects.

In localities where weevils and grain moths injure stored grain, the thoroughly dry seed ears should be stored in very tight mouse-proof receptacles with 1 pound of moth balls or naphthalene inclosed for each bushel of corn. This quantity tightly inclosed with the corn will prevent damage from these insects and will not injure the seed. If at any time signs of weevils or grain moths show on the corn, it should be inclosed with carbon bisulphid in practically air-tight rooms, bins, boxes, or barrels for 48 hours. The bisulphid should be placed in shallow dishes or pans on top of the seed. One-half pint is sufficient for a box or barrel holding 10 bushels or less. One pound is sufficient for a room or bin 10 feet each way. After fumigation the ears must be thoroughly aired, taking care that no fire is present when the fumigating box is opened.

REGULATIONS FOR STOCKYARDS PROHIBIT DECEPTIVE DEALING

(*Continued from page 2.*)

signor of the live stock consigned to such commission man the true identity of the purchaser of such live stock.

SEC. 3. A commission man shall not sell or dispose of live stock consigned to him to any person in whose business he has a pecuniary interest without promptly disclosing such fact to the owner or consignor of such live stock.

SEC. 4. Each commission man shall use his best efforts to see that the requirements of section 3 of regulation 4 are fully complied with as regards feed for live stock consigned to him.

SEC. 5. Each licensee who shall purchase for another any live stock in or in connection with stockyards shall upon request by any interested party or by any duly authorized agent of the Secretary at the time of sale or thereafter, disclose the name and business address of his principal to such party or agent.

Regulation 6.—Interpretation.

SECTION 1. Any licensee being in doubt as to the meaning of any of these regulations as applied to his business may refer the question in writing to the Chief of the Bureau of Markets, Washington, D. C., stating all the facts involved.

Regulation 7.—Publications.

SECTION 1. The publication of information relative to the enforcement of regulations shall be made in Service and Regulatory Announcements of the Bureau of Markets and such other media as the Secretary may from time to time designate for the purpose.

* * * *

In accordance with my proclamation of June 18, 1918, and pursuant to the authority conferred on me by the act of Congress approved August 10, 1917, entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," the foregoing regulations are hereby prescribed and promulgated to govern persons licensed to engage in the business of conducting or operating stockyards, or of handling or dealing in live stock in or in connection with stockyards.

Done in the District of Columbia this twenty-sixth day of July, 1918.

WOODROW WILSON.

KEEP THE GARDENS GOING—TILL THEY'RE GONE

Land Allowed to Loaf Helps Only the Hun—Watch Early Frost Dates.

STILL TIME IN SOUTH

Practically all the common garden vegetables can be grown satisfactorily in the South in the late summer and fall, and it is an important item of national defense that every foot of available ground be made to work every day of the growing season. These points are stressed by specialists of the United States Department of Agriculture in an appeal to Southern gardeners, in cities, suburbs, or on the farm, to take full advantage of the climatic conditions in the South and increase vegetable crops to the maximum.

Don't neglect home gardens during the latter portiou of the season, the specialists advise, and remember that it is not yet too late even to start a garden on land that has been idle this season.

It is perhaps even more important to have a good fall garden in the South than it is to have a good spring garden, because in the spring there is a supply of commercially grown vegetables, while in the fall and winter the supply from this source is limited. A large portion of the vegetables consumed in the South during the winter must be obtained from the North unless home gardens are worked to the full extent. Productive home gardens not only help to feed the Nation, but release staple foods for shipment abroad and decrease the strain on railroad traffic.

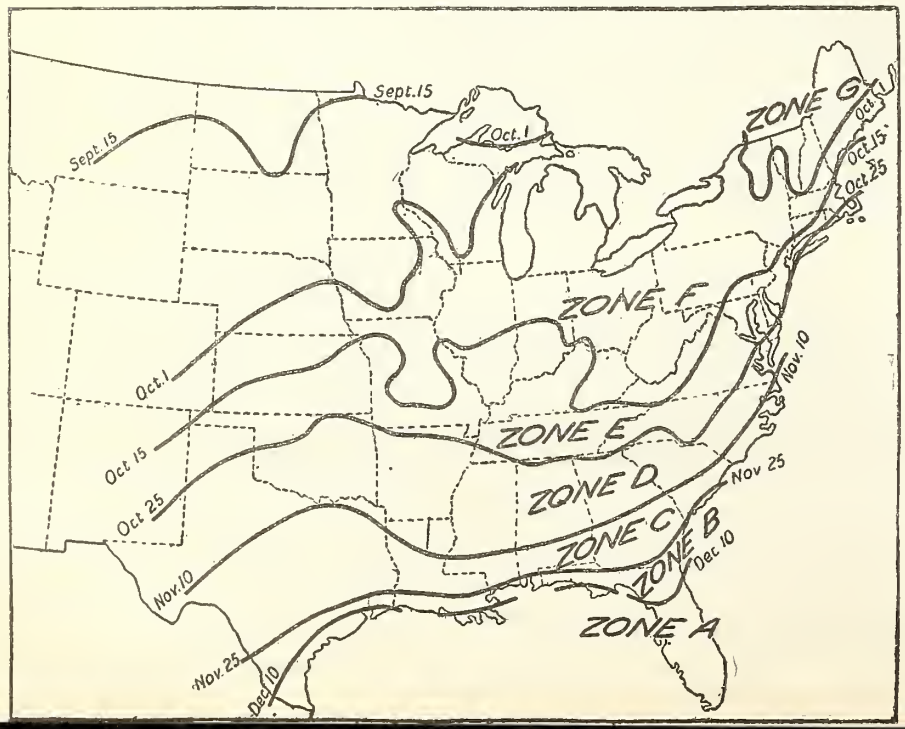
Anyone who is in doubt as to what and when to plant in order to have a good full garden is advised to consult experienced neighbors or get in touch with his county agricultural agent, the State colleges of agriculture or the United States Department of Agriculture.

Growing Vegetables for Winter Storage.

In the fall, garden space should be devoted largely to crops that can be kept for winter use, provided they mature late in the season. These include such crops as late cabbage, turnips, potatoes, beets, and carrots. The vegetables planted in the fall garden mature just before winter when the temperature is low and conditions are well suited for storing. In winter it is especially difficult to secure a varied diet, and home-stored vegetables fill this need without imposiug any burden on transportation systems. A good farm garden in practically all parts of the South can be made to produce a large part of the food needed for the family. One that is well planned and properly cared for may easily

(*Continued on page 5.*)

HOW THE FALL FROST LINE MOVES SOUTHWARD.



HURRY UP IN NORTH

Keep every foot of ground busy every day during the growing season, urges the United States Department of Agriculture in an appeal to American gardeners on farms or in the cities or suburbs. Gardeners who neglect their plats in late summer, and do not plant second crops are unmindful of their own best interests and of their patriotic duty in helping to increase the country's food supplies.

Prepare for Growing Fall Vegetables.

As the early vegetables are removed the land should be planted a second time to something that will give returns during the autumn months. Early peas, beets, onions, cabbage, lettuce, radishes, and Irish potatoes may be followed by late crops of snap beans, uavy beans, turnips, carrots, beets, late cabbage, kale, spinach, lettuce, and radishes. In many of the milder sections of the North such crops as spinach, kale, and hardy varieties of onions may remain in the ground all winter.

Plenty of Seeds for Fall Gardens.

Seedsmen advise the department that there is sufficient seed available to provide for an extensive planting of fall gardens. The problem is to escape the drought of midsummer and yet to mature the crops before the weather becomes cold enough to injure them. The dates of planting will depend upon the locality. The date of the first killing frost is shown in the zone map, and the table shows the latest safe date for planting the various vegetables in the different zones.

Give Care to Soil.

Special care should be taken in fitting the and for fall crops and the addition of a little quick-acting fertilizer will hasten maturity. If the ground is dry at planting time it should be rolled or slightly packed over the seeds to insure an even start.

Gardeners uncertain of when and what to plant in fall gardens are advised to consult experieuced neighbors or get in touch with their county agricultural agents, State colleges of agriculture, or the United States Department of Agriculture.

For rice cultivation water is important, as the crop requires continuous irrigation for approximately 90 days.

STILL TIME IN SOUTH

(*Continued from page 4.*)

be made worth from $50 to $100 to the average family.

If the garden has been allowed to go to weeds now is the time to clean them out and to plan and prepare for the fall crops. If the space is available it will still pay to plant a garden even though no early garden has been grown. If the spring and summer garden did not furnish sufficient vegetables for canning and drying to meet family needs during the winter plan to produce them in the fall garden.

Protecting Seeds from Heat.

In most parts of the South it is difficult to get some vegetable seeds to germinate in midsummer heat. This may be overcome to a large extent by covering the rows with old burlap bags, paper or any other material to keep the soil moist and the seeds from drying out until they germinate. After the seeds germinate the coverings may be removed.

Time Necessary for Maturity of Vegetables in Any Locality.

Crop.	Period necessary for maturity.
Bean:	
Bush	40 to 65 days.
Pole Lima	80 to 120 days.
Beet	60 to 80 days.
Cabbage, late	90 to 130 days.
Carrot	70 to 100 days.
Cauliflower	100 to 130 days.
Celery	120 to 150 days.
Corn, sweet	60 to 100 days.
Cucumber	60 to 80 days.
Kale	90 to 120 days.
Lettuce	60 to 90 days.
Parsley	90 to 120 days.
Pea	40 to 80 days.
Potato:	
Irish	80 to 140 days.
Sweet	140 to 160 days.
Radish	20 to 140 days.
Spinach	30 to 60 days.
Squash:	
Bush	60 to 80 days.
Vine	120 to 160 days.
Tomato	80 to 125 days.
Turnip	60 to 80 days.

In cooler parts of the South it is now time to plant late cabbage, late potatoes, sweet corn, beans, beets, carrots, cauliflower, celery, kohl-rabi, and Brussels sprouts. Turnips, kale, mustard, and spinach may be planted in late August and early September in the upper South. These crops will not be killed by the cold ordinarily experienced in any section of the South and thus will be available through the winter and spring.

In the lower South it is still early to plant most vegetables in the fall garden, but the land should be put in condition, the seed secured and the garden plan made. Sweet potatoes, however, may be set out now and the seed of cabbage, cauliflower, celery, Brussels sprouts, and kohl-rabi should be started now for planting later. By the time these plants are large enough to set out, planting will be feasible.

Gardeners in all sections of the South should have plenty of beans, cabbage, potatoes, sweet potatoes, beets, carrots, turnips, spinach, kale, and mustard to use throughout the fall and a sufficient supply of most of them to last through the winter.

HOW EARLY FALL FROST DATE VARIES IN WEST.

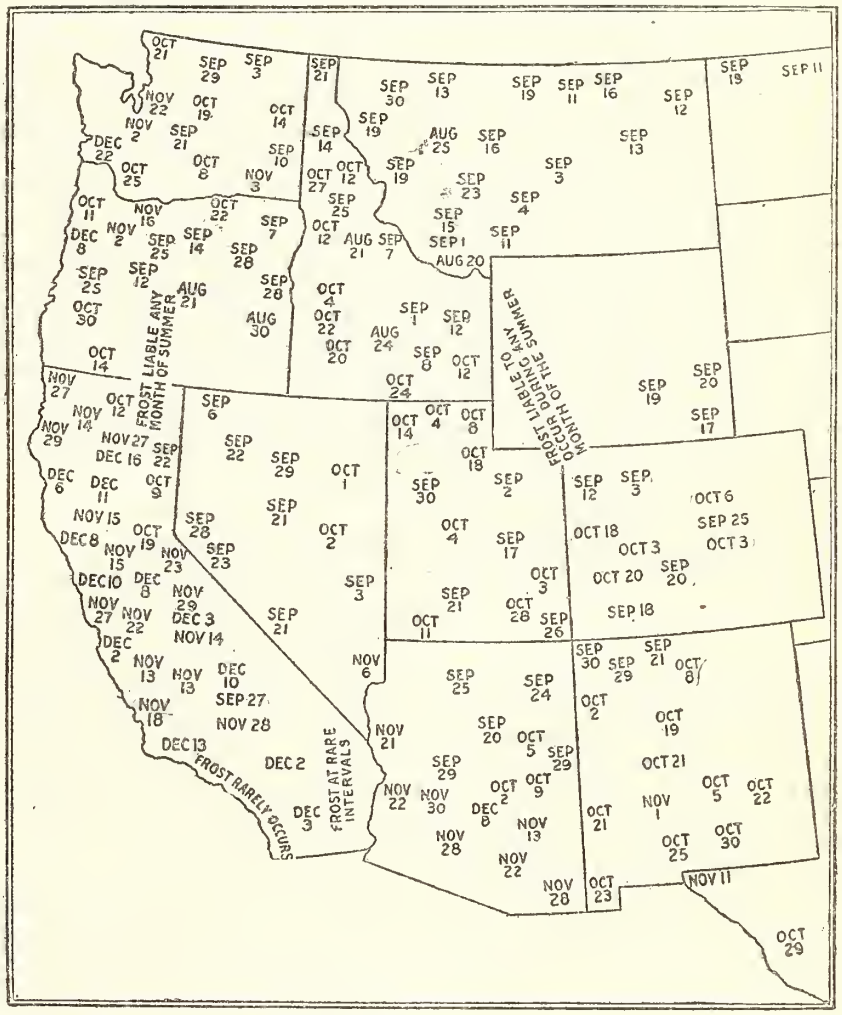


TABLE OF LATE PLANTING DATES.

Latest safe dates for planting vegetables for the fall garden.

Crop.	Zone C.	Zone D.	Zone E.	Zone F.	Zone G.
Bean:					
Bush	Sept. 15	Sept. 1	Aug. 15	Aug. 1	July 15
Pole Lima	...do	Aug. 1	July 15	July 1	
Beet	...do	Sept. 1	Aug. 15	Aug. 1	July 15
Cabbage	Sept. 1	Aug. 15	July 15	July 1	June 15
Carrot	...do	...do	...do	...do	Do.
Cauliflower	...do	...do	...do	...do	Do.
Celery	Oct. 1	Sept. 1	Aug. 1	...do	May 15
Corn, sweet	Aug. 15	Aug. 1	July 15	...do	June 15
Cucumber	...do	...do	...do	...do	
Kale	Nov. 1	Oct. 1	Sept. 15	Sept. 1	Aug. 15
Lettuce	...do	Oct. 15	Oct. 1	Sept. 15	Sept. 1
Parsley	...do	Oct. 1	Sept. 1	Aug. 1	July 1
Pea	...do	...do	...do	...do	July 15
Potato:					
Irish	Aug. 15	Aug. 1	July 15	July 1	June 15
Sweet	...do	July 15	June 15	May 1	
Radish	Oct. 15	Oct. 1	Sept. 15	Sept. 1	Aug. 15
Spinach	...do	...do	Sept. 1	Aug. 15	Aug. 1
Squash:					
Bush	Aug. 15	Aug. 1	July 15	July 1	June 15
Vine	July 15	July 1	June 15	June 1	
Tomato	Aug. 15	July 15	July 1	June 15	
Turnip	Oct. 15	Oct. 1	Sept. 1	Aug. 1	July 15

In Zones A and B many vegetables are planted late in the fall to form the winter garden or early spring garden.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That are Helping American Farmers to Feed Nations

Liberty Farmers Organize.

That farmers recognize the obligation which goes with deferred draft classification for agricultural purposes is shown by many instances which have come to the attention of the United States Department of Agriculture. One of the most recent of these is the organization by 1,200 farmers of La Porte, Ind., under the name of Liberty Farmers. These men, given deferred classification, pledge themselves to carry out unquestioningly the food-production program advocated by the United States Department of Agriculture. It is stated that their action is particularly gratifying to the administration at Washington, since it recognizes the oneness of the Government's organization, and the close interrelation of the efforts of all the Federal departments in the achievement of victory by utilizing the country's man power to best advantage.

Marketing Hogs in Motor Trucks.

An example of how motor trucks are relieving railroad transportation in many sections of the country is shown in the receipts of hogs delivered to the Omaha market by this method of conveyance. According to a report recently compiled by the Bureau of Markets there was an increase of 180 per cent in the number of hogs transported to that market by motor trucks during the first six months in 1918 as compared to the corresponding period in 1917. The number carried in this way amounted to 92,780 for the period in 1918 as compared to 33,084 for the corresponding months last year. Estimating 70 hogs as an average carload in railroad shipments, the number delivered by motor trucks on the Omaha market during the first six months of 1918 aggregated more than 1,300 carloads, or an average of more than eight carloads for every market day during the period. The motor-truck business is becoming so important that commercial organizations of Omaha are taking active measures to utilize the trucks on return trips to country points for hauling various kinds of freight. Experience has shown that motor-truck marketing is as feasible in winter as in other seasons, as more than 26,000 hogs were delivered directly from farms to the Omaha market during January and February.

Aids in Furnishing Army Remounts.

The United States Department of Agriculture is cooperating with the War Department in producing horses for the Army. G. A. Bell, of the Department of Agriculture, has recently returned from Virginia, Vermont, and New Hampshire, where, with a representative from the War Department, 135 horses were purchased. These horses were 3-year-olds and were purchased from farmers who bred their mares to stallions owned by the Department of Agriculture. Through an agreement made by farmers and the Government the Government agrees to pay $150 for each colt sired by Government-owned stallions, provided it passes the requirements of the War Department, or the farmer, by paying the service fee, can keep the colt for his own use.

Interest in Sheep Increases.

There is an increased interest in growing sheep both for mutton and wool, according to a report just received by the United States Department of Agriculture from the sheep-extension husbandman in Indiana. This feeling, according to specialists of the Department of Agriculture, prevails in many other States. The increase in production is being obtained from the saving of ewe lambs and the introduction of good stock from the western range.

Campaign to Increase Leather Supply.

To relieve as much as possible the unprecedented demand for leather, the United States Department of Agriculture is urging that slaughtered and dead animals on the farm be skinned with great care. Usually the skinning of animals on the farm and the care of hides is not given a great amount of consideration and through carelessness many hides are cut and scored when they are removed. By devoting a little extra time and care in skinning animals to make sure that they are not cut or scored the farmer can increase their value on the market several times. In tanning hides scores show very plainly and in many cases one-half of the thickness of the leather is lost by such defects.

To Develop Disease-Resistant Flax.

Field and laboratory studies of flax are being conducted by the United States Department of Agriculture to determine the cause of flax canker and to establish its relation to flax wilt. Several organisms which are parasitic on flax and which cause flax wilt have been isolated. One species has been found to produce a disease somewhat similar to flax wilt but which kills the wilt-resistant as readily as it does the more susceptible varieties. As a result of this discovery more work on disease-resistant varieties of flax has been undertaken, together with other measures for disease control. Flax wilt is the most serious disease of this crop. Not infrequently an entire flax field will show so much wilt as to be practically a total loss to the grower.

Emergency Poultry Federation Meets.

The first regular meeting of the National War Emergency Poultry Federation, which was organized last April by poultry specialists of the United States Department of Agriculture, State poultry extension men, and poultry leaders was held in Chicago, July 15–18, inclusive. The Department of Agriculture was represented by Dr. M. E. Pennington and H. M. Lamon, who were on the program, R. R. Slocum, and D. L. Orr. This organization was founded to consider ways and means to safeguard, promote, and federate the poultry interests of the Nation, to cooperate with the National and State Governments in securing adequate supply of poultry products, and to harmonize and develop sound educational programs.

Big Increase in Cottage-Cheese Sales.

Reports from four western cities where cottage-cheese campaigns have recently been completed show largely increased sales of this wholesome meat substitute. The following increased daily sales are recorded: Salt Lake City, Utah, from 375 to 850 pounds; Spokane, Wash., from 100 to 1,800 pounds; Seattle, Wash., from 1,115 to 1,675 pounds; San Francisco, Cal., from 393.5 to 1,624 pounds; or a total increase of 3,969 pounds of cottage cheese sold daily in the four cities.

This is the result of 10-day campaigns in each city in which the food value of cottage cheese and its use in new dishes was demonstrated by a woman agent in dairying and in which the creameries and milk plants were assisted in making cheese by two representatives from the United States Department of Agriculture and the State agricultural college.

County Agent Movement Grows.

Two thousand county agent workers were employed to help the great land army of

this country to produce and conserve food during the six months from January 1 to July 1, according to a recent report made by the United States Department of Agriculture. The report shows that over 6,200 county agent workers were at work in all parts of the country on July 1, as compared with 4,200 on January 1. This increase consists of an addition of 650 persons connected with the county agent work, 625 with the home-demonstration work, and 725 with the boys' and girls' club movement.

Agents Help Bakers and Hotel Men.

Bakers, hotel men, grocers, and managers of institutions are coming to home-demonstration agents for help with their conservation problems. The community kitchens and liberty bread shops are well patronized by these business men, who need expert advice to conform to the Government's food regulations. At one of the bread shops in Springfield, Mass., assistance has been given to matrons from both Smith College and Mount Holyoke. In Owego, N. Y., the county home demonstration agent has gone into the kitchen of one of the hotels where she has given her personal help to the cooks in teaching them how best to follow the latest conservation recipes.

Developing Motor-Truck Routes.

Arrangements have been made whereby rural motor-truck operators can cooperate with the Bureau of Markets in developing rural truck routes for farm products. Operators of truck routes who comply with certain requirements of the bureau will receive assistance in building up business in farm produce, and will be given a sign to display on their machines stating that they are cooperating with the Department of Agriculture. Truck operators can get details of the plan by writing to the Bureau of Markets, Washington, D. C.

Progress in Pink Bollworm Eradication.

Recent work of the United States Department of Agriculture and State authorities of Texas in eradicating the pink bollworm, the serious cotton pest which appeared in certain sections of Texas last year, consists in destroying cotton planted in violation of the pink bollworm quarantine act of Texas and in destroying all volunteer or seedling cotton in the area which might be the means of carrying this pest over to another year. During one month 45 fields in different localities in the quarantined area about Trinity Bay were examined and showed from 1 to 75 volunteer cotton plants per acre. All the available men have been concentrated on removing and destroying these volunteer plants and cleaning up cotton fields. By this method it is hoped that the pink bollworm can be entirely starved out.

Girls Tend Gardens and Pigs.

Two county home demonstration agents in New York have organized groups of Camp Fire Girls for summer war work. In Ulster County the girls are helping with the canning and are planning a conservation exhibit for the county fair. In Monroe County the girls have formed a gardening unit and in addition have purchased 17 pigs which they will raise for market.

Fumigation Houses on Mexican Border.

The largest disinfection project which has ever been undertaken in this country, and probably the largest in the world, was recently begun by the United States Department of Agriculture along the Mexican border. Five fumigation houses are to be erected at a cost of approximately $50,000 for the disinfection of freight cars, motor trucks, and wagons entering the United States from Mexico loaded with products that might introduce insect enemies, especially the pink bollworm of cotton. The largest house will accommodate 15 freight cars. Each house will be equipped with apparatus and plant for the generation and distribution of hydrocyanic-acid gas.

Find Sugar Substitutes for Bottlers.

Methods of reducing the consumption of sugar in soft drinks have been worked out by the Bureau of Chemistry, United States Department of Agriculture, which is now cooperating with producers throughout the United States. The bureau has prepared directions for making soft drinks which include formulas that utilize substitute sweet materials such as corn sirup (ordinary glucose), corn sugar, maltose sirup, honey, and high-grade refiner's sirup. By following these directions, which are being distributed among bottlers the actual sugar content in soft drinks can be cut to 50 per cent or less. A saving of approximately 50,000 tons of sugar annually is thus possible, it is estimated, and at the same time the customary taste and quality of the beverage can be preserved. It is estimated that there are 110,000 producers of soft drinks in the United States, employing 2,000,000 workers, and having a total capitalization of $250,000,000.

Southwestern Cattle Move to Market.

The annual movement of cattle from the grazing districts of the Southwest is in progress, as indicated by the receipt of 20,000 head on July 15 at the Kansas City market. They were shipped from Kansas and Oklahoma. This movement, which ordinarily begins about July 20 to August 1 and ends about November 15 to December 1, is a little earlier than usual, according to a report of the Bureau of Markets of the United States Department of Agriculture. The report indicates that many of the cattle, which have been grazed in the Southwest this year and are now being marketed, are a year younger than those handled heretofore, and their condition when they reach the market is slightly better than usual.

Extra Report on Live Stock.

One of the developments which has resulted from the Bureau of Markets of the United States Department of Agriculture taking over the daily telegraphic reports on live stock is the edition of an extra report sent out by wire from Chicago each market day between 9 and 9.30 a. m. to all live-stock offices of the Bureau in other markets. This report is a brief telegraphic message on the condition of the local hog market as it has developed up to that hour and is designed to fill the gap between the 8.30 and 10.30 a. m. reports, which will be sent from the Chicago market as usual. It will be posted on bulletin boards and made available to all interested parties at all markets where local offices of the Bureau are maintained. The message will be telegraphed to any market not served by the Bureau's leased wires, provided the parties desiring the service will pay the commercial telegraphic charges.

At Work on Barley Diseases.

Studies are in progress on the stripe, net blotch, and spot blotch diseases of barley by the United States Department of Agriculture, in cooperation with the Wisconsin Agricultural Experiment Station. These diseases are common in the upper Mississippi and Ohio Valley states and are often responsible for serious losses to the growers. The investigations cover the life history and habits of the several organisms, the distribution and economic importance of each of the three diseases, the relation of the causative organisms to other cereals and the wild and cultivated grasses, and methods of control by means of formaldehyde and other fungicides. Stripe disease of barley is found to be largely preventable by formaldehyde treatment. Some of the results obtained are now being prepared for publication.

Rice Diseases Being Studied.

Field, greenhouse, and laboratory experiments of rice diseases are being investigated by specialists of the United States Department of Agriculture. The work includes a study of the organism causing rice blast and several other organisms which are related to seedling blights, leaf diseases, and

possibly the straight head of rice. The organism causing the common leaf disease together with two species of Fusarium, found quite frequently in diseased rice plants, have been isolated and data on their life history are being collected. Comprehensive experiments on the relation of cultural treatments to the probable causes of straighthead are under way and considerable data have been collected. The most important of our rice diseases are rice blast and straighthead. Losses from these diseases often amount to as much as 10 to 35 per cent in some fields.

Vegetable Seed Crop Promising.

A majority of the growing vegetable seed crops are in good condition, according to reports just received from many large growers in the United States by the seed-reporting service of the Bureau of Markets. Growers in the East and Middle West almost uniformly reported on June 28 good growing conditions. Some failures have been reported for some crops iu certain sections, particularly California and the Pacific Northwest, where hot weather during June damaged many crops severely. Crops growing in the river districts of California have suffered the least from drought and the prospects in these sections are that fair to normal seed crops will be harvested. Hot weather in the spring in the western section will result in damage, ranging from "slight damage" to 15 per cent, according to local conditions.

Careful Shocking of Corn Will Prevent Waste of Food

As a nation we waste enough corn to supply several European countries with bread. Much of this waste is due to poor shockiug.

Coru is put into shocks for the purpose of protecting the stover and grain from rain and snow until it dries and can be husked and stored. By a little care in building the shocks and in tying them high, near their tops, good protection is afforded both grain and stover. If the stalks of each arm load do not slant in one direction only—toward the center of the shock—and if the tying is not done high up near the top, the shock is very apt to twist. Tying near the middle does not prevent twisting, tying near the top does.

Equal distribution of the arm loads of corn around a shock is important. An equal distribution, with all the stalks slanting toward the center, forms a conical storm-proof shock, having each cornstalk acting as a brace to hold the shock erect. With more weight of corn on one side than on the opposite side, the shock is likely to lean or go down. Twisted and down shocks are difficult to handle and to husk. As such shocks do not shed water, both grain and stover often spoil. Good shocking is such a simple matter that it receives little attention. Experienced corn cutters usually build good shocks. It is no harder than to build poor shocks. Inexperienced helpers often feel disinclined to take instructions regarding such simple work, and if of uninterested, careless dispositions, an experienced person should work with them and make sure that the arm loads are properly placed. Without such supervision inexperienced help often proves much worse than no help at all. Very poorly built shocks afford no protection, On the contrary, they hold water, prevent drying, and thereby hasten and increase the waste of food.

This fall every patriotic individual will prevent waste of food. By good shocking an enormous waste can be prevented. If any corn shocks twist or go down, they should be husked and stored before the grain and stover commence to spoil.

Now is the Time to Select Ewes For Next Year's Lamb Crop.

Now is the time to select the ewes for breeding, well before the mating season and after this year's lambs have been weaned, to produce next year's lamb crop. In culling ewes from the flock two types should be carefully noted; those that are extremely fat and those that are very thin.

The fat ones, especially those carrying an excessive bunch of fat about the rump, may be barren, their high condition being due to the fact that they have not been under the strain of bearing and nursing a lamb.

On the other hand, it must not be supposed, according to the United States Department of Agriculture, that all thin ewes should be bred. If they have dull eyes, harsh fleeces, pale, dry skins, a general ruu-down and unthrifty condition, and poor teeth, due to old age, they should be disposed of at once. If there is a contrary good condition, the thinness may be safely attributed to the fact that the ewes have been heavy milkers and have raised pairs of strong, thrifty lambs. Such ewes should be retained, and if of approved type their ewe lambs should be selected in maintaining the flock.

As a final point in selection, a careful examination of the udders may result in further culling those likely to be unable to raise their lambs because of defective udders.

Farm Flocks Must Produce.

More than ever, says the department, farm flocks are being called on to contribute their full share to the food and clothing of the country. It is for this reason that the performance of each ewe in lamb and wool production must be known. All ewes must pay their way. If the flock owner will cull his stock annually, as here suggested, he will have good individuals plus regular performance. Not only will this mean greater profits, but it will be an assurance of increased supplies of mutton and wool to meet the insistent demands of war-time consumption and will help toward victory.

75,000 Tons of Nitrate Delivered to Farmers Despite Lack of Ships

Despite the shortage of ships and two shipwrecks, farmers received 75,000 tons of nitrate of soda from Chile, bought through the War Industries Board and distributed by the United States Department of Agriculture, according to an announcement recently issued by the Bureau of Markets.

The nitrate was sold and delivered under authority of the food control act, which authorized the President to procure and sell nitrate of soda at cost for the purpose of increasing food production, and appropriated $10,000,000 for this purpose. The War Industries Board was designated by the President to make arrangements for the purchase of the nitrate and the Secretary of Agriculture was charged with its sale and distribution. The nitrate was sold at $75.50 a ton at ports, its cost as nearly as it could be be determined in advance. Applications for more than 120,000 tons, the total amount purchased in Chile, were received by the department in February, 1918. On account of shortage of available shipping it was possible to bring in only 75,000 tons, leaving on hand in Chile between 35,000 and 40,000 tons. Ships have just been assigned by the Shipping Board for the transportation to this country of the remainder of the nitrate contracted for last year which, of course, can not be used this season.

No announcement can be made at this time, says the statement from the department, as to whether nitrate will be offered for sale to farmers next year. The question of procuring nitrate for agricultural purposes is closely connected with the demand for nitrate for munitions and with the availability of tonnage for bringing in the nitrate. It has been intimated to the department by the War Industries Board and the War Department that the need for nitrate for munitions is such that it is doubtful whether it will be possible to import any next year for use as fertilizer.

Commercial Stocks of Grain and Other Food Products Reported

The commercial stocks of wheat reported to the Department of Agriculture in a food survey dated July 1, 1918, amounted to 9,237,059 bushels, according to a statement recently issued by the department. This refers to stocks actually reported and does not represent an estimate of the total commercial stocks of the country; neither do the figures include stocks on farms on July 1. The commercial stocks reported were held by 7,989 firms out of a total of 12,019 submitting reports, the firms consisting of elevators, warehouses, grain mills, and wholesale grain dealers, and were equal to 28.8 per cent of the stocks held by the same firms on July 1, 1917.

Survey and Visible Supply Figures Compared.

The commercial visible supply figures, as published by the Chicago Board of Trade for the nearest date, namely, June 30, 1918, showed only 785,000 bushels of wheat as against 14,209,000 a year ago, and the Bradstreet figures for June 30 showed 2,465,000 bushels as against 19,901,000 bushels for the same date in 1917. Inasmuch as the holdings reported by the Chicago Board of Trade represent stocks in the primary and export markets, the survey figures show that the commercial holdings were confined for the most part to the smaller interior points.

The comparative figures thus shown for the commercial stocks of wheat this year and last should be considered in connection with the stocks still remaining on farms. The estimated amount of wheat on farms on July 1, as presented in the monthly crop reports of the department, was 8,283,000 bushels as against 15,611,000 bushels on July 1 a year ago.

Other Cereals, Flour, and Meal.

The commercial stocks of other cereals on July 1, according to the department statement, were as follows: Corn, 27,371,441 bushels; oats, 40,598,653 bushels; barley, 6,551,653 bushels; and rye, 1,658,189 bushels. These stocks represent the following percentages of the corresponding stocks of July 1, 1917: Corn, 156.1 per cent; oats, 101.9 per cent; barley, 136 per cent; and rye, 127.9 per cent.

The commercial stocks of flour and meal, as reported for the survey were: Wheat flour, white, 2,392,943 barrels; whole wheat and graham flour, 199,466 barrels; barley flour, 426,441 barrels; rye flour, 451,208 barrels; corn flour, 43,559,833 pounds; corn meal, 93,638,778 pounds; buckwheat flour, 2,161,585 pounds; and mixed flour, 8,393,594 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 48.9 per cent; whole wheat and graham flour, 259.1 per cent; rye flour, 344.8 per cent; corn meal, 216.5 per cent; buckwheat flour, 72.6 per cent, and mixed flour, 200.8 per cent. The stocks of barley flour and corn flour on July 1, 1917, were so small as to make any comparison between them and the present stocks on a percentage basis unprofitable.

Wholesale Stocks of Selected Commodities.

The following commodities were reported by wholesale grocers: Beans, 3,768,022 bushels; rice, 32,349,005 pounds; rolled oats, 40,177,743 pounds; canned salmon, 59,623,859 pounds; canned tomatoes, 59,657,762 pounds; canned corn, 30,706,139 pounds; and sugar, 175,925,924 pounds. The stocks of beans, rolled oats, and canned salmon showed a substantial increase, the present holdings representing the following percentages of those on hand a year ago: Beans, 173.1 per cent; rolled oats, 133.6 per cent, and canned salmon, 117.5 per cent. The stocks of rice, sugar, and canned corn, on the other hand, showed a substantial decrease, being 58.9 per cent, 77.6 per cent, and 87.9 per cent, respectively, of the amounts reported for July 1, 1917. The stocks of canned tomatoes were 102.8 per cent of those reported a year ago.

Returns from wholesale grocers and condensaries reporting holdings of condensed milk on July 1, 1918, indicated that the stocks of condensed milk, amounting to 30,886,297 pounds, were 12.1 per cent larger than those last year and that the stocks of evaporated milk, amounting to 82,511,008 pounds, were 36 per cent larger than on the corresponding date a year ago.

NEW METHOD OF TAGGING TREES.

Linen cloth is now being used in some of the experimental work of the United States Department of Agriculture in tagging trees and has been found to be very successful. Writing on wooden tags, which were formerly used, soon becomes illegible, while copper tags are not only expensive but are not large enough for sufficient data. The linen tags are first soaked several days in water to remove the sizings and then dried and smoothed with a hot flat iron. Data is written with India ink using a round-pointed pen. The ink soaks in but does not run. Such tags will last a year or longer. When they are to be used for longer periods or under conditions where the tags come in contact with the ground, they are coated with paraffin after labeling. One method is to dip them in a mixture of gasoline and paraffin (proportion 1 quart of gasoline to one-half pound paraffin). The gasoline evaporates leaving a film of paraffin. If the tags become coated with mud they can easily be washed and the ink shows up clearly. Such tags may be used in a variety of ways, for when treated in this manner they last exceptionally well.

MAXIMUM LOADS INCREASED IN SHIPPING SHELLED CORN

Only 18 Inches of Space Required Between Grain and Car Eaves

Agreement Made by Railroad Administration and Bureau of Markets—Shipments Inspected Under Grain Standards Act

Shelled corn subject to inspection under the United States grain standards act may have a maximum loading in freight cars which leaves only 18 inches between the top of the grain and the eaves of the car.

This ruling, arrived at by agreement between the Railroad Administration and the Bureau of Markets of the United States Department of Agriculture, supersedes the prewar instructions of the department that in loading shelled corn there should be 30 inches between the top of the corn and the top of the car. The leaving of space at the top of the car is to permit of necessary sampling and inspection of the grain.

Corn Shippers Warned.

Anyone who ships shelled corn by grade in interstate or foreign commerce, from or to inspection points, must have it inspected under the provisions of the grain standards act. The new ruling will make it possible for the shipper to comply with the rule in respect to leaving space for inspection samples, and at the same time to meet the desires of the Railroad Administration as to the maximum use of cars under the extraordinary conditions imposed by war.

Urge Cooperation.

Inspectors, warehousemen, merchants, millers, and all others whose business bears on the shipment of shelled corn are urged to cooperate in carrying out this agreement, and all grain exchanges, boards of trade, and grain dealers' organizations are requested to bring this matter to the attention of their members.

It should be noted, says the Department of Agriculture, that this ruling applies to shelled corn only.

Two of the most prevalent annual weeds in spring-wheat fields are the wild mustard and the wild oat. These weeds are enabled to exist because they mature seeds which shatter and reinfest the land before the wheat is ready to harvest.

TOO much formality in landscape design goes far toward robbing public parks and grounds of merit in the eyes of man and has almost spoiled them for birds.

LARGER FERTILIZER ORDERS WILL HELP SAVE CAR SPACE

Small Purchasers Urged to Combine in Buying and Help Railroads

Necessary to Adjust Fertilizer Trade Units to Meet War Conditions—How Farmers Can Help in Filling Cars to Capacity

Need of car space for transportation of war materials has made economy of shipping facilities a problem of vital importance to the Nation. Loading freight cars to capacity in order to utilize all the available car space is, therefore, a matter of real importance in order, on the one hand, to release all unnecessary space for other purposes and, on the other hand, to make it easier to secure all the space required by the given industry.

In view of this situation it is necessary that fertilizer trade units, which were established when cars were plentiful and of smaller capacity, be adjusted to meet the conditions created by the war and by the increased capacity of freight cars now in general use by the railroads.

The total output of commercial fertilizers for the year 1917 was about 6,400,000 tons. The general average covering the loading of fertilizer cars for the entire country during 1917 was 20 tons per car, and the average distance hauled was approximately 127 miles.

How Light Loads Waste Space.

The number of cars and the car mileage that could be saved yearly by eliminating light loading is as follows:

Average tons per car.	Requirements for hauling 6,400,000 tons an average distance of 127 miles.		Saving over 20-ton load.	
	Cars.	Car-miles.	Cars.	Car-miles.
20	320,000	40,640,000	.....	.....
30	213,334	27,093,418	106,666	13,546,582
40	160,000	20,320,000	160,000	20,320,000
50	128,000	16,256,000	192,000	24,384,000

In addition to a saving of cars and car mileage, heavier loading saves fuel and terminal space.

In view of the above facts it is held to be obviously necessary that the trade units for fertilizers be increased so that the greatest possible movement be obtained with the least number of cars in order to secure an adequate supply for this industry and to release all the transportation energy possible for the use of war materials.

Combined Orders Necessary.

Farmers, dealers, and retail merchants should make careful note of these facts and combine orders in sufficient quantity to guarantee a maximum carload under the new conditions, says W. W. Mein, assistant to the Secretary of Agriculture, in charge of fertilizer matters.

Local farmers' organizations that are in the habit of making cooperative purchases in carload lots should also make careful note of these facts and combine sufficient orders to guarantee a maximum carload.

Where no local farmers' organization is making cooperative purchases, farmers can help by making their needs known early in the season in order that dealers may order in maximum carload shipments.

With the patriotic cooperation of the many interests and individuals affected, a great deal can be done to assure the country, in the words of the law, of an adequate supply and an equitable distribution and to facilitate the movement of fertilizers and fertilizer ingredients.

FOOD AND FARMING

Crop yields per acre, last year, were about 2 per cent above average.

The total acreage in cultivated crops this year is 3.7 per cent greater than it was last year.

The composite condition of all crops in the United States July 1 was about 1.6 per cent above their 10-year average condition on that date, a decline from 2.9 per cent above a month before.

Broom buyers will welcome the news that the broom-corn crop of "brush" this year will amount to 70,500 tons, in contrast with 51,838 tons in 1917 and 38,726 tons in 1916—that is, if the greatly increased production is reflected in lower broom prices at retail.

Kafir grains are increasing in production in this country with astonishing speed. The crop of 53,858,000 bushels in 1916 increased to 75,866,000 bushels in 1917 and the prospect for 1918, based on the conditions of July 1, is a crop of 110,005,000 bushels, or more than twice the crop of two years ago.

In two years the production of dry edible beans in this country will have almost doubled, if the forecast of the Bureau of Crop Estimates of the United States Department of Agriculture for this year is verified in the harvest. The expected crop of this year is 19,791,000 bushels, one-half of which will come from California and nearly one-fifth from Michigan.

Hops will make a larger crop this year than in 1917 by 17 per cent, if the recent forecast by the Bureau of Crop Estimates of the United States Department of Agriculture is confirmed by the harvest. The expectation is 32,494,000 pounds, with which may be compared the crop of 27,788,000 pounds in 1917, of 50,595,000 pounds in 1916, and of 52,986,000 pounds in 1915.

The greatest yield of wheat per acre that has been ascertained by the United States Department of Agriculture is 117.2 bushels, the average of 18 acres in Island County, Wash., in 1895. The field had been in cultivation for 30 years without any sort of fertilizer, except such as may have been left by crops. The usual production of wheat per acre in that State is 23 to 25 bushels; in the United States, 14 to 16 bushels.

Iowa is the leading State this year in the production of corn and oats, according to the indications of July 1; Kansas leads in wheat, Minnesota in barley, North Dakota in rye and flaxseed, South Dakota in hay, Louisiana in rice, probably Pennsylvania in buckwheat, Texas in sorghum grains and cotton, New York in potatoes and commercial apples, Alabama in sweet potatoes and peanuts, California in commercial peaches and edible dry beans, Oklahoma in broom corn, and Kentucky in tobacco.

Henry C. Stuart Appointed To Price Fixing Committee

The War Industries Board has announced the appointment of ex-Gov. Henry C. Stuart, of Virginia, as a member of the price-fixing committee of that board. Gov. Stuart brings to the committee a broad knowledge of matters pertaining to agriculture. He is chairman of the agricultural advisory committee appointed by the Secretary of Agriculture and the Food Administrator.

The central thought to be borne in mind in considering the growing of more poultry as a war necessity is the fact that the keeping of poultry is a means of converting into good food materials that can not be utilized by man, that can not be eaten by any other kinds of stock, and that, without the poultry, would be absolute waste.

STUDY YOUR PLANTS NOW FOR NEXT YEAR'S SEED POTATOES

Behavior of Tops During Growing Season a Good Index of Value

A Seed Plat Will Furnish the Best-Growing, Disease-Resistant Specimens From Which the Start of the Following Crop May be Procured

Do not wait until planting time next spring to select your seed potatoes. Do not even wait until harvest time this fall. Begin now by making a study of the plants. This is the advice given by specialists of the Bureau of Plant Industry of the United States Department of Agriculture to potato growers who want to have seed that will produce the highest yields. Potato growers should have a seed plat, which may or may not be a part of the main crop, and from the best growing, disease-resistant plants in this plat, which produce high yields of marketable sized potatoes, select their seed for the following year. An area of one-tenth or one-fifteenth of the entire acreage will usually provide sufficient seed for the following season's planting.

While it is an advantage to start the seed plat with selected material the work may be begun during the growing season with any good stock of promising quality planted in suitable soil and properly cared for. The best portion of the field, therefore, should be selected for the seed plat. It should be well drained, frequently cultivated, and thoroughly sprayed.

Frequent Inspection Advised.

Several times during the growing season the seed plat should be inspected. All weak, degenerate, and diseased hills and those showing varietal mixtures should be pulled, so that only the progeny of healthy hills of the correct variety will remain at harvest time. Plants showing stem rot either at or below the surface of the soil, plants developing any type of abnormal rolling of the leaves, those with mottled or crinkled leaves, and any plants that are stunted, weakened or that make unthrifty growth, should be discarded.

If practicable it is best to dig the seed plat by hand, care being taken to eliminate all low yielding hills and those producing an undue proportion of small or unshapely tubers. In harvesting avoid unnecessary cutting, bruising or other injury, since the vitality of damaged tubers is reduced. Gather and store the seed potatoes in slat crates. Place them as soon as possible after harvesting in a cool reasonably moist storage house provided with good ventilation and maintained at a temperature of 30° to 40° F.

Before the next planting time the stock should be carefully worked over to remove all badly cut or bruised tubers and those showing serious scab or black scurf and decay of any kind. Tubers badly off type should also be discarded, as should any showing abnormal discoloration of flesh, which can be seen, of course, only at the time of cutting. If scab or black scurf is present in any degree, it is advisable to treat the seed by covering for 30 minutes in a solution containing 4 ounces of corrosive sublimate to 30 gallons of water.

Give City Workers A Chance To Show What They Can Do In Harvest

The Federal farm help specialists for the Southern States, who held a "council of war" recently at Birmingham, Ala., have resumed in their respective States their work of helping to assure sufficient labor for the harvesting of the South's big crops of cotton and corn and other foodstuffs.

To do this they are going to use dozens of methods that already have worked well this year, and they are going to try some new ones of promise.

Time for Best Work.

They will try to convince every farmer that this is the best time for his best licks in doing his own work or in showing others how; that he should not only be ready to accept help from his neighbor but strive to help his neighbor; that he should be ready to go into intelligent cooperative schemes of buying machinery or bringing in labor; that he should try to make farm life attractive to his workers, so that they will stay or come back; that any tender-handed city people who go to the country to help harvest should be given a fair chance at least to show what they can do, and if they make good they should be paid the wages of regular farm hands, and should be encouraged to keep up the good work.

The farm labor men are looking to the towns and cities for the reinforcements that will win on this part of the battle line. They will not only send out occasional volunteers, but they will get stores, some mines and factories to close at critical times so that their men, many of them experienced in farming, can go back to the soil. One noticeable thing about the labor shortage is that it is showing the rest of the country just how important the farms are—that if food production fails we all fail—and how the city and country must help each other out.

How to Get Help.

The first thing for the farmer with a harvest labor problem to do is to find out if he can handle it himself or with the help of his neighbors. If he must have outside help he should get in touch with his county agent, State farm help specialist, chamber of commerce or other civic organization, State agricultural college, extension director, the nearest office of the United States Employment Service, or the United States Department of Agriculture.

WHAT TO DO WHEN CORN RIPENS.

When corn ripens, drop all other business and select an abundant supply of seed corn from the standing stalks. The process is too important to be conducted incidentally while husking. When selecting seed corn, give the process your entire attention. Get the very best that is to be had and preserve it well, and your increased yields will return you more profit than any other work you can do on your farm.

DESCRIBES FARM HOUSEHOLD ACCOUNTING.

Two methods of keeping simple household farm accounts are described in a new publication from the United States Department of Agriculture entitled "Farm Household Accounts," Farmers' Bulletin 964. The suggestions contained in it should be very helpful to women who are endeavoring to keep some record of the varying income and outgo of food supplies and especially to those who wish to keep track of household expenses as related to farm business.

One method given is to record the purchases or money paid out without classifying the expenditures, and the other is to classify when the record is made. Both ways are practical and are intended to suggest how household accounts may be kept rather than to outline any hard and fast system for all families to follow.

Notwithstanding the fact that many grain smuts are easily preventable, those most readily subject to control, according to reasonable conservative estimates, are annually destroying 20,000,000 bushels of wheat, upward of 50,000,000 bushels of oats, and 6,000,000 bushels of barley. Prevent smut by treating seed with formaldehyde.

Storage in Well-Built Houses Will Help Save South's Sweet Potato Crop

Proper storage of sweet potatoes is one of the most important food conservation measures that can be put into effect in the Southern States, according to United States Department of Agriculture officials. No perishable product produced in the South is of as great importance as the sweet potato and none, as a rule, is so poorly handled.

To keep this crop in good condition the potatoes must be well matured before digging, carefully handled, well dried or cured after being put in the storage house, and kept at uniform temperature after they are cured. The only safe and practical method of storing sweet potatoes is in a well-built up-to-date storage house. Suggestions on storing sweet potatoes and detailed information on how to construct a suitable storage house are contained in Farmers' Bulletin 970, recently published by the United States Department of Agriculture.

When to Dig Them.

The grower can judge when his sweet potatoes are ripe by breaking or cutting one of them and leaving it exposed to the air for a few minutes. The cut or broken surface dries if it is mature, but the surface remains moist if it is not ready to be dug. However, in regions where early frosts occur the potatoes should be dug about the time the first hard frost is expected, regardless of their stage of maturity.

The second essential, careful handling, should be observed in digging, gathering, hauling, and unloading. Sweet potatoes should be sorted in the field and gathered in padded baskets or boxes to prevent bruising or breaking the skin. The baskets or boxes should be loaded on the wagon, hauled to the storage house, and the potatoes carefully placed in the bins. When they are to be hauled very far, a wagon with bolster springs should be used. Sweet potatoes should never be thrown from one row to another, loaded loosely into a wagon body, or hauled in bags, because any one of these practices will bruise them and afford an opportunity for disease to enter.

Ventilation and Heat Important.

The third and fourth essentials, thorough drying and uniform temperature, may be secured in a storage house where artificial heat can be supplied. The house must be constructed in such a way that it can be thoroughly ventilated when necessary and yet be made nearly air-tight in cold weather.

It is good economy to build a substantial sweet-potato storage house, because it will last longer and require less attention than a cheap, poorly constructed one. It would be possible to keep the potatoes in a cheaper and less carefully constructed house, but the attention required and the additional fuel used would soon exceed the cost of the extra labor and material necessary in building the better one. The chances of loss are much greater in a poorly built house.

Good Results Obtained From Vegetables in Chickens' Diet

Scarcity of beef scrap, together with its high price, has led poultry specialists of the United States Department of Agriculture to conduct feeding tests with laying hens in which cheaper and more plentiful kinds of protein feed are tried. In these tests feeds rich in vegetable protein have been used in connection with beef scrap to make up the laying ration.

One pen of hens, fed a mash containing 20 per cent beef scrap, produced the greatest number of eggs, but a second pen fed a mash consisting of 10 per cent peanut meal and 10 per cent beef scrap produced an average of only 10 eggs less during the test period of 5½ winter months. Mashes made with soybean meal, cottonseed meal, and velvet-bean meal, in combination with beef scrap, have been fed with fairly satisfactory results.

DON'T BE CAUGHT NEXT SPRING WITHOUT GOOD SEED CORN.

If you have ever found yourself compelled to plant corn that was not fit for seed—a predicament many growers faced last spring—do not be caught that way again. Now is the time to begin preparations for next spring. Get your seed at ripening time, when the best quality is most plentiful. Get an abundance—enough for a second planting, if necessary, and a hold-over supply. Next year's crop may not be fit for seed. Save seed from the most productive individual stalks with the same care you use in propagating your animals. Care for each living kernel from the time it ripens until it is planted, in a manner that will enable it to develop into a thrifty plant. Do not expect germination tests made in the spring to restore vigor that proper gathering, drying, and storing would have retained.

BUSINESS MEN CALLED ON TO ASSURE HELP FOR HARVESTS

Strong Organizations Needed to Direct Labor, Says Specialist

Farmers of South Praised for "Almost Superhuman Efforts" to Get Maximum Production—Each State Expected to Aid Itself

Business men of the cotton States should need no demonstration of their duty in preserving the great crop about to be harvested, stated George A. Maloney, supervising Federal farm help specialists for the Southern States, at the conference of State farm help specialists held recently in Birmingham, Ala.

"Every community in the South," said Mr. Maloney, "needs at this time the vitalizing and directing force of a well-manned and strong organization for the protection of its interests and for controlling the labor situation, seeing to it that all labor is kept constantly employed and necessary man power provided for its industries, none of which is more important than agriculture.

"Where loafing and idling is known to exist it is the duty of every citizen having knowledge of it to see that the constituted authorities use their official power for its elimination. A neglectful public official is as gross an offender as is the loafer.

"The farmers of the South generally deserve the highest praise for the almost superhuman efforts they have put forth to make their acres produce the maximum. During the last month I have visited practically every Southern State and am kept informed weekly of conditions in all of them, and know that in general no crop that ever has been produced here has been so carefully tended and have been in such good condition at this period as those now growing. With shortage of man power almost universal this has meant extra hours for the farmer and his family in the field, expenditure of money for improved machinery, and many other personal sacrifices.

"The situation must be met at home, and we know that it can be met if each State will provide the means to take care of its own needs."

More than 2,000,000 acres of land were planted to peanuts in 1917, according to figures obtained by the Bureau of Crop Estimates, United States Department of Agriculture. The rapid growth of the peanut industry during recent years is regarded as one of the striking developments the agriculture of the South.

IT LOOKS LIKE A BIG YEAR FOR THE APPLE PIE DEVOTEE

More of Commercial Fruit Than in 1917, According to Forecast

Increase in Barreled Crop More Than Makes up for Drop in Boxes—New York District Shows Big Gain

Commercial apples will be more plentiful this year than in 1917, according to a recent forecast by the Bureau of Crop Estimates of the United States Department of Agriculture.

This prospect is more especially true for the barreled crop than for the entire commercial crop, because the boxed crop of California and the Pacific Northwest will be below that of 1917. Based on July conditions, the prospective commercial apple crop has the promise of 25,711,000 barrels (boxes being expressed in terms of barrels), or 15 per cent above 1917. The increase of the crop that is marketed in barrels is estimated at 34 per cent, while for the boxed crop a decrease of 17 per cent is indicated.

Big Gain in New York.

Distinctive apple-producing regions are known to the trade and are becoming known to the general public. This year, the most prominent region for barreled apples is western New York, where a commercial crop of 5,320,000 barrels is indicated, compared with last year's crop of only 1,118,000 barrels. Next in prominence, this year, is the Shenandoah-Cumberland district, extending from Virginia through Maryland into Pennsylvania. The indicated crop is 1,973,000 barrels, a slight relative gain over 1917. The western Michigan crop, this year, will increase to 756,000 barrels from 350,000 in 1917, according to the July estimate; the crop of the Champlain district of New York and Vermont, to 174,000 barrels from 120,000 in 1917; of the Rome Beauty district in southern Ohio, to 258,000 barrels from 122,000 in 1917.

Some Districts Decline.

Other barreled-apple districts decline in prospect. The New England Baldwin belt declines from 750,000 barrels in 1917 to 651,000 in 1918; the Hudson Valley, from 1,074,000 barrels to 826,000; the Piedmont district of Virginia, from 485,000 barrels to 371,000; southern and western Illinois, from 1,320,000 barrels to 936,000; the Ozarks, from 793,000 barrels to 546,000; and the Missouri River region, from 1,239,000 barrels to 882,000.

The commercial apples that are marketed in barrels will amount to 18,601,000 barrels this year, it is estimated, against 13,856,000 barrels in 1917, and of this production 29 per cent will come from western New York and 39 per cent from that district and the Shenandoah-Cumberland district combined.

THE COUNTY farm bureau is an organized agricultural democracy, by means of which farmers and their families express themselves concerning all matters relating to the advancement of agricultural, home, and community life.

Report Shows Less Wool Used in June Than in May of 1918

Less wool was used by manufacturers in June than in May, according to the monthly wool consumption report just issued by the Bureau of Markets. June consumption was 65,200,000 pounds, grease equivalent, compared to 74,600,000 pounds in May; 70,700,000 pounds in April; 71,900,000 in March; 63,700,000 in February; and 65,100,000 pounds in January.

Stocks of wool consumed in June by classes, in pounds, were: Grease wool, 37,997,749; scoured, 12,169,900; and pulled, 2,171,175. Consumption by States for all classes of wool in pounds, was: Massachusetts, 22,965,959; Rhode Island, 6,288,939; Pennsylvania, 6,267,300; New Jersey, 5,338,880; New York, 3,634,104; Connecticut, 1,839,461; Ohio, 1,513,661; New Hampshire, 1,381,498; Maine, 848,627; and all other States, 2,260,395.

Out of 570 schedules sent to manufacturers 505 reported stocks of wool used in June, 57 no wool consumed, and 4 stated that material used consisted of tops, yarns, and waste. Schedules from 4 firms were not received at the time tabulations were completed. These 4 concerns have a combined capacity of 10 sets of woolen cards and 5 worsted combs.

TOBACCO THIS YEAR IS CLOSE ON HEELS OF 1916 BIG CROP

Tobacco, more than any other crop, has peculiarities that subdivide it into distinct "types," and for this reason the production of each type is estimated by the Bureau of Crop Estimates of the United State Department of Agriculture. In the recent forecast, based on July 1 conditions, a total crop of 1,187,123,000 pounds is estimated, or almost as much as the large crop of 1916. The cigar types have a prospective production of 262,755,000 pounds, against 215,517,000 pounds in 1917, a substantial increase that is well distributed among all cigar types. The four principal cigar types will severally have an estimated production of 68,820,000 pounds in Pennsylvania, 66,237,000 pounds in Wisconsin, 65,558,000 pounds in the Miami Valley in Ohio, and 51,456,000 pounds in New England.

Among the chewing, smoking, snuff, and export types of tobacco the following five may have a production this year that will be a little above the crop of 1917. For Burley tobacco the forecast for 1918 is 258,400,000 pounds; for Virginia Dark, 53,800,000 pounds; for Old Bright, 148,500,000 pounds; for New Bright, 207,100,000 pounds; and for Maryland and eastern Ohio Export, 28,026,000 pounds. And these five types this year are 75 per cent of the indicated production of this class of types. The other types in this general class will have a lower production than last year's as the forecast now stands.

MONEY IN GATHERING SUMAC.

Women and children on farms can make good wages from June to September by gathering and curing sumac as a side line, the United States Department of Agriculture says. To assist in firmly establishing the industry of gathering this wild plant—a source of tannin used in tanning and dyeing—the department is soon to publish in a bulletin helpful suggestions to gatherers and dealers. It is believed that the possibilities of the sumac industry have not been realized and that war's interruption of Sicilian importations makes the present an opportune time to place the industry on a firmer footing. The sumac plant is chiefly abundant east of the Mississippi River from Maine to central Georgia and Mississippi.

PLAN GAS ATTACK ON WEEVILS.

Bean and pea weevils—which annually destroy millions of dollars' worth of valuable food and feed in the form of beans, peas, and cowpeas in storage—have not yet discovered the advantages of gas masks. Those who expect trouble from weevils can successfully kill them, says the United States Department of Agriculture, by a gas attack immediately after the crops are harvested. Carbon disulphid should be used. Place the seed in an air-tight container, such as a tin can, barrel, or bin, and over the top pour a small amount of the chemical (2 to 4 pounds to every 500 cubic feet of space to be fumigated), cover the seed with burlap or old blankets and fumigate from 24 to 48 hours. The seed should then remain in air-tight containers, and should be inspected frequently to see that the weevils do not reappear. In case they do, repeat the gas treatment.

War Finance Corporation Will Make Advances on Loans to Farmers

As the result of conferences between the Secretary of Agriculture, Assistant Secretary of the Treasury Leffingwell, and the chairman of the War Finance Corporation, W. P. Harding, at the suggestion of the Secretary of the Treasury, the War Finance Corporation has notified banks and trust companies, through the Federal reserve banks, of its willingness to make advances to banks and trust companies which have made loans to farmers and cattlemen. The following statement, issued by the corporation, explains this action more fully:

The board of directors of the War Finance Corporation has announced that at the suggestion of Secretary McAdoo it had wired the Federal reserve banks of Dallas, Kansas City, and Minneapolis, requesting them to notify the banks and trust companies in their respective districts, nonmembers as well as members of the Federal reserve system, of the willingness of the War Finance Corporation to make advances under Section VII of the War Finance Corporation act to banks and trust companies which had made loans to farmers and cattlemen.

It is hoped that this measure will enable these institutions to extend credit freely both to farmers and cattlemen whenever necessary to insure the preservation of these essential industries in localities where droughts have seriously impaired their productivity.

Under the terms of the War Finance Corporation act these advances are limited to 75 per cent of the amount of the loans made by the borrowing institution, or to 100 per cent in case the borrowing institution itself furnishes additional collateral to the extent of 33 per cent of the advance. Such advances will be made by the War Finance Corporation upon written application through the several Federal reserve banks, acting as its fiscal agents, but only after consideration of their recommendations upon the promissory note of the borrowing institution secured by the obligations of the farmers and cattlemen to which loans have been made by the borrowing institutions, together with any security taken for such obligations.

The following is quoted from Secretary McAdoo's telegram to Governor Harding:

"Droughts in Montana, parts of North Dakota, Kansas, and Texas are creating a serious situation for the farmers there, involving possible abandonment of farms and sacrifice of live stock. I think that effective assistance can be rendered by the War Finance Corporation. This corporation was created to help finance industries essential to the war, and I know of no industry more vital to the war than that of raising wheat, corn, live stock and other food products. Aid should be extended by the War Finance Corporation to the farm industry and to every other industry which is vital to the prosecution of the war. I think the War Finance Corporation should make loans to National and State banks on farmers' paper. This would enable all National and State banks to extend loans to deserving farmers with full knowledge of the fact that such paper can and will under the terms of the act be taken by the War Finance Corporation. I am sure that the Department of Agriculture will be glad to cooperate in the same direction through the agents and agencies of that department."

Order Canning Containers Now To Be Sure of Having Them

Housekeepers who have not laid in their canning supplies should do so at once, advises the United States Department of Agriculture.

Reports show that already some sections of the country are having difficulty in securing containers for home canning. The shortage of tin cans, glass jars, and rubbers, coupled with delayed express shipments, make it imperative to place orders for supplies immediately if the needs of the next two months are to be met.

Women desiring information about canning equipment or the ordering of supplies should apply at once to their local home demonstration agent, the leader of boys' and girls' club work, or the county agricultural agent.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended August 3, 1918:

Recent Experimental Work on Poisoning Cotton-Boll Weevils. Farmers' Bulletin 731.

Fall-Sown Wheat and Rye. Office of the Secretary Circular 108.

National and State Live-Stock Associations and Allied Organizations. Yearbook Separate 742.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

BEES BUSY, YES! HONEY HAS BECOME VALUABLE FOOD CROP

More Than 200,000,000 Pounds Produced Yearly in United States

Expert Knowledge of Management Required—White Clover Furnishes Most of the Sweet—Kinds and Their Sources

Honey is produced in this country in ordinary years considerably in excess of 250,000,000 pounds. Most of the commercial part of this crop is now handled in a large way as a staple food product. In part this is the result of commercial beekeeping and the production of honey as an occupation.

In recent years bee diseases have been driving out of business the untrained and indifferent beekeeper and opening the field to the expert who is able to overcome these diseases and who is informed concerning the sources and times of honey flow and the details of bee management, according to a recent bulletin from the Bureau of Crop Estimates, United States Department of Agriculture, from which the following facts are derived:

Honey-Producing Plants.

The white-clover belt is the most important honey-producing region, because it furnishes not only the leading commercial honey but also more than one-half of the honey crop of the entire country. This belt extends from Maine to Virginia and westward to the semiarid plains. From white clover alone is secured about one-tenth of the Nation's crop of honey. This kind is almost colorless, has a heavy body, and a distinct but delicate and delicious flavor.

Alfalfa honey is second in commercial importance. Its region is mostly west of the one hundredth meridian, and it is colorless, except in the Southwestern States, where it darkens to amber, with a distinctive spicy or minty flavor.

Third in importance for honey production is sweet clover, a native and mostly wild legume growing abundantly throughout all of the western mountain and plateau States and in less degree eastward to the Atlantic States.

About 4 per cent of the surplus honey—that is, the honey that bees do not require for their own sustenance—comes from the flowers of the cotton plant, 3½ per cent from the basswood tree or American linden, about 3 per cent each from the tulip poplar tree and buckwheat, and 2 per cent from the goldenrod, a widespread plant that produces a highly flavored, golden honey. The

(*Continued on page 15.*)

TO SAVE THE NEEDED GRAIN USE PORTABLE GRANARIES

If Additional Storage Space Must Be Had on Farms Build Movable Bins

Complete Construction Details May Be Obtained from the Bureau of Markets, U. S. Department of Agriculture

One of the best ways to meet any shortage of storage space for grain on the farm this fall is to construct portable granaries. A convenient type which can be constructed at small cost has been designed by specialists of the United States Department of Agriculture. Complete details for its construction have been published in Document 11 of the Bureau of Markets. While the granary described in this publication was designed especially for the wheat-producing areas of the Pacific Northwest, it can be used to advantage by any grain growers who have not sufficient space in permanent granaries to keep their grain on the farm until it can be marketed. Owing to the transportation situation it may be necessary to hold grain on the farms where it is produced for a longer period this fall than under normal conditions, and as much grain is now being stored in the bulk rather than in bags, portable farm granaries will be found useful on many farms this year.

Bin Holds 720 Bushels.

The granary described in the publication is 8 feet wide, 8 feet high, and 16 feet long, and has a capacity of 720 bushels. It is designed to give maximum storage space from an advantageous use of the most economical lengths of lumber. It is of sufficient strength to withstand hard usage and racking from being dragged over the ground, as well as from the pressure of the grain when filled. It can be placed alongside the thrasher and the grain spout directed into it.

When the granary has been filled a layer of straw should be placed over the grain and the whole covered with a tarpaulin. This gives a roof that will protect the grain and can be removed easily. A more substantial roof, and the one recommended in the publication, is made of removable board panels. This type is preferred to a permanently fixed one consisting of boards nailed directly to the rafters, because the top can be removed and the granary filled to its maximum capacity without difficulty. To provide for emptying it is suggested that from the center of each side two or three of the boards be cut the length between studs. These boards may be pried loose to permit the grain to flow out.

Small Types Are Best.

Portable granaries of different capacity may be constructed, but it is not advisable to mako them too large, for the smaller types are more easily moved. Two small bins require little more material to give the same capacity than one large bin. To provide additional storage space at small cost, two small granaries can be placed parallel to each other a few feet apart, a temporary floor laid between them, and end walls erected.

Plans are being prepared by the United States Department of Agriculture for the construction of two types of "knockdown" granaries and two permanent granaries. These plans should be ready for distribution at an early date and may be obtained, together with plans for the portable granary, from the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

BEES BUSY, YES! HONEY HAS BECOME VALUABLE FOOD CROP

(*Continued from page 14.*)

mountain sages of California produce a type of honey of much importance and, by common consent, one of the finest of all in absence of color, in density, and in flavor. At least 35 per cent of the honey crop comes from the clovers and alfalfa.

Where Honey Comes From.

According to the census of 1910, California produces nearly one-fifth of the honey crop, New York and Texas each about one-eighteenth, and Michigan, Iowa, Colorado, Wisconsin, Missouri, Pennsylvania, and North Carolina each about one twenty-fifth.

In the early days of the warfare against food frauds, when exposures of adulterations were popular, some of the California comb honey was looked upon with suspicion in the East on account of the colorless appearance, whiteness of the wax, and perfect filling of all cells, and honey eaters were known to reject this honey on the supposition that it was machine work, comb and all, so commonly accepted was the widely circulated fiction that honeycomb was made, filled with glucose, and capped, all by machinery.

Pound for pound rice is substantially as nutritious as wheat.

BIRDS steadily reduce the number of harmful insects and everything should be done to attract them to public parks where so much depends on preserving the vegetation.

Harvesting and Storing Sorghums Requires Special Care in Drying

Grain sorghums should not be harvested before the heads are mature nor stored before they are properly cured. These recommendations are made by specialists of the United States Department of Agriculture to an increasing number of growers who are raising grain sorghums in the Great Plains States.

When grain sorghum heads are well cured they make valuable feed, but because of the excessive amount of moisture which they contain they may become moldy or musty and unfit for feed unless thoroughly dried before being stored. Well-ventilated bins should always be used in storing sorghum grains, for free circulation of air through the mass of grain is insurance against heating.

Curing in Windrows.

When weather conditions are favorable the heads may be cured by throwing them n long, shallow piles as they are cut from the stalks. Care must be taken, the specialists warn, not te make the piles too large if the crop is wet from recent rains or if it is at all green. When fully mature and thoroughly dry the heads of milo and feterita may be hauled directly to well-ventilated cribs. The heads of kafir require greater care in drying, for the stems may be green and juicy when the grain is ripe.

If thrashing or grinding is to be done the grain should be allowed to become thoroughly dry. In ordinary thrashing a high percentage of grain is cracked. Cracked grain packs more closely and spoils more readily than whole grain. To increase the percentage of whole grain in thrashing, reduce the speed of the cylinder and remove part of the concaves of the separator.

Prevent Heating.

In storing sorghum heads or the thrashed grain every precaution should be taken to prevent heating. The more moisture the grain contains when put in storage the more readily will it heat. If large quantities are stored in one bin, the risk of damage increases. The warmer and moister the climate, the quicker the grain will get out of condition. Weavils working in the grain increases its temperature and decreases the spaces for air circulation, thus making conditions favorable for further damage from heating. Storage bins should be provided with simple, cheap, ventilators made of long, narrow frames covered with wire screen. These should be placed on the floor 3 or 4 feet apart, extending the full length of the bin, and opening at either end to the outer air. In wide and deep bins it is advisable to place a row of upright ventilators through the middle of the bin, the lower ends resting on the ventilator which has been placed on the floor, thus making a sort of chimney up through the grain and giving better circulation of air. Whenever possible the storage of sorghum in large bins should be avoided, and always stored sorghum should be inspected frequently.

IT IS a most happy augury that a war which is essentially a war for democracy should have borne as one of its first fruits a greater democracy of agricultural education whereby the farmers may themselves participate in an effective, organized way in shaping the national agricultural program and in adapting it to their local conditions.

PRESIDENT MAKES AVAILABLE $5,000,000 TO AID FARMERS

(*Continued from page 1.*)

tional security and defense. It is distinctly not intended to be used to stimulate the planting of wheat or any other grain where such planting is not wise from an agricultural point of view and where other activities are safer.

It is not intended that this fund shall be used to make loans to farmers who have banking collateral and can otherwise secure loans. The recent action of the War Finance Corporation, indicating its willingness to make advances to banks and trust companies which have made loans to farmers and cattlemen, should ease the general financial situation and in large measure enable bankers to extend accommodations to farmers having such collateral. Banks are urged to avail themselves of the offer of the War Finance Corporation.

Use in Fall Planting.

This fund, because of its limited amount, will be used necessarily principally in connection with the fall planting of wheat, or of preferred substitute grains in the areas involved. This will not exclude consideration of cases of individuals who do not intend to or who can not engage in fall seeding, who might otherwise be compelled to abandon their homes and make great sacrifices, provided sufficient funds are left after considering the pressing fall planting needs.

The loans will probably not be made for more than $3 an acre, and it is likely that a maximum of 100 acres in some localities and of 150 in others will be established. In addition to paying a reasonable rate of interest, each farmer will be required to contribute to an insurance fund out of the proceeds from the sale of his crops if his operations are successful.

How Loans Will be Made

The following statement, supplementary to that issued July 29, was given out August 1 by the Treasury and Agricultural Departments, explaining how loans will be made to farmers in certain drought-stricken areas from the President's special fund. The areas now under consideration are those in the Northwest and Southwest, where two successive crop failures have resulted from severe drought and winter-killing.

The money will be advanced as a loan in cases of necessity upon the crop of wheat or substitute grains planted. No loan will be made in excess of $3 per acre, and no applicant will be financed beyond 100 acres. Therefore no loan will be made in excess of $300. Notes given will bear 6 per cent interest, payable in the southern districts October 1 and in the northern districts November 1, 1919.

The Federal land banks of the districts embracing the affected areas will be designated as the financial agents of the Government to make and collect the loans. They will expect the cooperation of local banks in the taking of applications, forms of which will be supplied on request, as soon as they can be printed. Banks and other local agencies assisting will be asked to contribute their services for the good of their several communities.

SELECT SEED CORN THIS FALL.

Seed corn should be selected from stalks standing where they grew, because only then, with certainty, can seed be obtained from—

Stalks that have a tendency to yield well, as shown by their superiority over surrounding stalks that grew under the same conditions. (Such seed inherits high producing power.)

Stalks without suckers. (Such seed produces fewer suckers than seeds from sucker-bearing stalks.)

Storm-proof stalks with ears at a desirable height.

Seed corn should be selected as soon as it matures, because—

Desirable stalks, especially early maturing stalks with hanging ears, are then most easily found.

Freezing weather injures the seed before it becomes dry.

Warm, wet weather may cause kernels to sprout before drying.

If the selection is delayed in the South the ears may become infested with weevils, grain moths, and their eggs.

It is as easy, more satisfactory, and much more profitable than selecting from cribs in the spring.

To Investigate Each Application.

The determination of the question of making each loan will, in the first instance, rest with the Department of Agriculture, which, through its various agencies, assisted by farm loan associations and other local farmers' organizations, will investigate each application.

Applicants must agree to use seed and methods approved by the Department of Agriculture, and the money will not be advanced until the crop is planted and a representative of that department certifies to the Federal land bank that the applicant has completed his planting in proper manner and with proper seed. Upon the receipt by the Federal Land bank of such certificate, applicant will be required to give note and chattel mortgage on the crop planted.

In order to give applicants a basis for temporary credit, to assist in obtaining the seed, the Department of Agriculture will promptly investigate all applications, and as soon as approved the Federal Land Bank will issue a statement of approval to the effect that the money will be advanced when the crop is planted and the necessary certificate and note and mortgage are executed and delivered. The machinery of the Treasury Department and the Department of Agriculture for this work is already in existence and will be put in motion at once, and no substantial delays will result if the interested communities do their own part promptly.

How Banks Can Help.

Banks wishing to assist their communities in this matter should at once communicate with the Federal Land Bank of their district.

The plan is to assist only those who have exhausted their resources. No loan will be made to any farmer who has unincumbered real or personal property sufficient to secure a loan of $300. In such cases country banks are urged, as a matter of public service, to render assistance and avail themselves of the facilities of the Federal Reserve Banks and the War Finance Corporation, which are prepared to render support to such efforts.

Each borrower will be required, as a part of his contract, to agree that, if his yield is 7 bushels per acre or more, he will pay into a guaranty fund a sum equal to 25 per cent of the amount loaned him to cover any losses that may occur. If the amounts so contributed exceed the actual loss by the Government the excess will be returned pro rata to the contributors.

In some of the areas of the Northern States farms have been abandoned because of quack grass.

The United States may advantageously consume much greater quantities of rice and grow the increase in our own rice fields.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI AUGUST 14, 1918 No. 2

AMERICAN FARMERS BULWARK ALLIES' FIGHT FOR FREEDOM

Assistant Secretary Vrooman Says They Held Front Trenches in 1917

War Found Agriculture Prepared to Meet Emergency Tasks—State Forces, Farm Organizations, and Journals Praised for Patriotic Help

Carl Vrooman, Assistant Secretary of Agriculture, in an address August 2 before the Lake Forest County Farmers' Institute in Lake Forest, Ill., said:

"In 1917, by producing one thousand million bushels more of food crops than usual, the American farmer kept the allies from famine and defeat, and thus saved civilization. This fact is not generally realized, even by well-informed city people, for the simple reason, as stated by Secretary Houston, that 'farmers are not spectacular performers. They do not furnish sensations and headlines. They work in season and out of season, from early morning until dusk, but they do not work in the limelight.'

America's Greatest Contribution.

"I sometimes wonder what percentage of our urban population realize that America's greatest contribution to the allied cause, during our first year of war, was not men, nor munitions, nor even money, but the part of our gigantic emergency feed crop we were able to ship abroad. It may sound strange to those who have not taken pains to look into the matter, but the truth is, if this Nation had been able to lay the foundations of military prepardness as thoroughly as it had those for agriculture, it would have been able to mobilize its fighting men and its industrial resources more rapidly and would have been able promptly after entering the war to have furnished millions rather than hundreds of thousands of thoroughly equipped men for the assistance of the allies.

"Three Federal departments were in position quickly to mobilize for war—the Navy Department, the Treasury Department, and the Department of Agriculture. This was because these were the three departments for which Congress had enacted the most effective 'preparedness' legislation before the war.

Farmer In Front Rank.

"I would not think of intimating that the farmer is any more patriotic than the city dweller, but it is only fair to say that recent events have demonstrated that the farmer is as patriotic as the best, and that when the storm broke he was better prepared for actual war work than was any other class of citizens.

"In truth, the day after war was declared, when as yet we had only 200,000 soldiers, and while the Navy was still on a peace basis, 6,000,000 farmers and their families were mobilized in the fields and furrows of America, where they have been fighting from dawn until dark every working day since.

"Our billion bushel increase in food crops was brought about in spite of the fact that when war was declared many of the crops already had been planted and all of them had been decided upon and prepared for. Moreover, this grandiose harvest was not due to unusually favorable weather conditions. The wheat crop, owing to droughts in the wheat belt, wheat diseases, and the largest percentage of loss by winter-killing ever recorded, was almost a failure; while

(Continued on page 3)

MORE SUGAR-BEET MILLS BUILT

Just 100 sugar-beet mills in the United States now are ready to turn out tons of sugar to furnish energy to our soldiers as soon as the harvesting of the sugar-beet crop begins.

Sixteen of these mills were built during 1917 and equipped for handling the 1917–18 crop. The capacity of these mills ranges from a few hundred tons to 3,000 tons of beets each 24 hours.

The first mill was built in California in 1870. During 1916, 17 mills were built in Wyoming, Idaho, Nebraska, Utah, Oregon, Colorado, Montana, Iowa, California, and Washington.

GROW YOUR OWN PROTEIN, ADVICE FOR HOG RAISERS

Feeds With Essential Elements Are High and Hard to Get

Alfalfa Hay, Soy Beans, Cowpeas, Oats, Peanuts, Cottonseed Meal, Velvet Beans Suggested as Home-Grown Substitutes

Feeds that are rich in protein, such as shorts, middlings, tankage, and oil meal, so essential to the proper development of hogs, are hard to get and high in price. The United States Department of Agriculture is urging that hog growers provide substitutes for these feeds in the form of home-grown crops that are known to be rich in protein, and are advising the use of fish meal where it is obtainable. Alfalfa hay, soy beans, cowpeas, and oats are suggested as good substitute feeds. In addition to these peanuts, cottonseed meal, and velvet beans are available to hog growers in the Southern States.

Fish Meal Found Good.

Fish scrap, which has heretofore been used as a fertilizer, has been tried in hog-feeding experiments conducted by the Department of Agriculture, and it has been found that meal made from this material is on a par with tankage when fed to hogs. A number of State experiment stations are now conducting similar experiments in feeding fish meal to hogs. Owing to the transportation situation, however, it is believed that fish meal can not be fed economically west of the Mississippi River.

Shortage in protein feeds can be met with alfalfa hay in all localities where it can be grown or obtained at reasonable prices. There are two ways in which this hay can be successfully fed—in small racks placed in protected sheds where the hogs may have free access to it, and by grinding it and feeding it in self-feeders or soaked in the form of thick slop. The department's specialists urge that hog growers provide an ample supply of alfalfa. Usually the last cutting of

alfalfa is saved for hog feeding, but for fear this cutting can not be harvested in good condition, on account of weather conditions, a sufficient amount of the second and subsequent cuttings should be saved to supply enough feed for hogs.

Rye sown in the fall makes good pasture for hogs. As soon as it is 3 or 4 inches high the hogs can be turned in and left until snow covers it.

Rye also provides good pasture in early spring. In the Southern States Abruzzi rye is recommended, as it makes a rapid growth and heavier foliage than other varieties.

Cut Soy-Bean Hay Early.

Soy beans are valuable to take the place of other protein feeds usually purchased. They make a very satisfactory feed when the beans are fed thrashed, or as hay, or when ground as meal. Soy-bean hay, to be most satisfactory, should be cut early enough to avoid the popping out of the seeds. The leaves and the seed both will be readily eaten when handled in this manner.

In the Southern States peanuts are quite extensively grown and make a good feed when used as a grazing crop or fed in the form of meal. Velvet beans are largely raised in this section of the country and it is recommended that they be left in the field and grazed.

Dwarf Essex rape and oats can also be used successfully in the South as a forage crop. Either can be seeded from the last of August to the last of September. Cottonseed meal can be very successfully used in connection with corn as a hardening feed for a period not to exceed 30 days.

PREVENTING CRANBERRY LOSSES

About 15 per cent of the cranberry crop is lost between the field and the consumer, according to Bulletin 714, Spoilage of Cranberries after Harvest, just issued by the United States Department of Agriculture. The losses are blamed in part to fungous rots and in part to smothering.

Methods of preventing losses are described in detail in the bulletin. The following practical suggestions are given: Spray thoroughly to prevent fungous infection. Pick and handle the fruit with great care, to avoid bruising. Cool the berries as quickly as possible after picking and keep them cool until they are shipped. Store and handle the fruit in a cool, well-ventilated building and use ventilated packages, especially for early shipments.

Dairy products are essential to the well-being of the Nation, and every effort should be expended to maintain the supply in this country and, so far as possible, to meet the increasing demands of the allies.

Wheat and Rye Conference Held For Ten Central Wheat States

The recently announced wheat and rye planting programs of the United States Department of Agriculture for 1918–19 was the subject of a conference between the officials of the United States Department of Agriculture and representatives of the 10 central winter wheat growing States at the Chicago Beach Hotel July 25 and 26.

State extension directors, accompanied by agricultural college wheat specialists, were present from the following States: Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, Missouri, Minnesota, Wisconsin, and Michigan.

This group of States has been asked by the Federal Government to plant a little more than 27 million acres of winter wheat, or practically $\frac{3}{5}$ of the winter wheat acreage suggested as a minimum for the entire United States. This minimum is about 7 per cent greater than the acreage planted in the fall of 1917.

Representatives from all States present felt confident that this minimum acreage allotment could and would be met, and said if conditions continued favorable the allotment would be exceeded, possibly reaching the maximum allotment suggested by the Department of 12 per cent over last fall's planting. In all cases it was thought the planting program for rye could be met.

Conditions favoring the larger planting are: The increase in the number of county agents from about 1,300 last fall to more than 2,400 at the present time; present favorable weather in many sections which permits an unusually large amount of summer plowing; economic and labor conditions which favor the substitution of wheat for oats and corn in certain sections; the failure of the new spring seedings in many places due to drought and the very good yields and profits returned in most of the winter-wheat growing sections this year.

Reports From States.

Extension Director R. K. Bliss, of Iowa, reported that his State would probably exceed the maximum request of the Government for winter wheat in that State in preference to planting the former acreage of spring wheat. Director K. L. Hatch, of Wisconsin, did not expect that State to exceed the minimum request for fall wheat, but anticipated a greatly increased spring acreage owing to the splendid spring-wheat crop in that State this year. Extension Director E. C. Johnson, of Kansas, reported that there would probably be a shrinkage of planting in the southwest portion of that State this fall, but this would probably be overcome by the larger planting in the eastern half of the State.

Extension Director C. E. Gunnels, of Nebraska, reported corn as a strong competitor of wheat over much of east Nebraska, but believed that in spite of this the State would reach the minimum acreage of winter wheat requested for that State. Vice Director W. F. Handschin stated that they were urging the greater planting of wheat in Illinois as good farm management at this time.

Farm Labor Discussed.

The United States Department of Agriculture farm labor specialists were present from seven of the States represented. Peter Fleming, secretary of the Food Productien and Conservation Committee of Illinois, E. K. May, secretary, and R. C. Bishop, administrator for the farm labor administration of the Illinois State Council of Defense, took part in the labor conference.

The farm-labor situation was discussed with reference to its bearing on the wheat and rye program, and the feeling was general that the outlook for labor for planting this fall and for harvesting next season is such as to warrant optimism.

Officials of the Federal Department of Agriculture present at the conference were as follows: C. B. Smith, chief of the Office of Extension Work of the Northern and Western States, who presided; C. R. Ball, cerealist, and C. E. Laighty, agronomist, who discussed the world's need for wheat and reasons for the acreage assigned each State; C. P. Hartley, who discussed the seed-corn situation; G. I. Christie and E. V. Wilcox, who presented the farm-labor situation throughout the country; and L. H. Goddard, representing the farm-management demonstration work of the department.

The following extension directors and county agent leaders were present: Clark S. Wheeler, director, Ohio; G. I. Christie, director, Indiana; T. A. Coleman, county agent leader, Indiana; W. F. Handschin, vice director, Illinois; J. D. Bilsborrow, assistant State leader, Illinois; K. L. Hatch, assistant director, Wisconsin; Andrew Boss, agronomist, representing the director, Minnesota; R. K. Bliss, director, Iowa; C. E. Gunnels, director, Nebraska; Edward C. Johnson, director, Kansas; A. J. Meyers, director, Missouri; J. F. Cox, professor of farm crops, representing the director, Michigan.

Agronomists and crop extension specialists present were as follows: William E. Hanger, extension specialist farm crops, Ohio; W. W.

Burr, agronomist, Nebraska; F. D. Keim, extension specialist agronomy, Nebraska; L. E. Call, agronomist, Kansas; P. C. Taff, agronomist, Iowa; D. S. Myer, in charge wheat production campaign, Indiana; W. L. Burlison, crop production, Illinois.

Farm labor specialists present were as follows: W. H. Young, farm labor specialist, Illinois; H. C. Filley, rural economics specialist, Nebraska; H. Lippart, farm help specialist, Wisconsin; Thos. D. Phillips, farm help specialist, Ohio; Ira F. Reed, farm help specialist, Missouri; A. B. Cook, farm labor specialist, Michigan; W. B. Brumfiel, farm help specialist, Indiana; E. K. May, secretary farm labor administration, Illinois State Council of Defense; Peter Fleming, in charge farm labor administration, State Council of Defense, Illinois; Roy C. Bishop, administrator farm labor administration, Illinois.

Others who attended were: C. V. Gregory, editor Prairie Farmer, Chicago, Ill.; Arthur C. Page, editor Orange Judd Farmer, Chicago, Ill.; Dr. W. P. Flint, chief field entomologist, Illinois State Department of Agriculture.

AMERICAN FARMERS BULWARK ALLIES' FIGHT FOR FREEDOM

(Continued from page 1)

the corn crop was nearly undone by a late spring, an excessively moist and almost sunless summer, and early frosts nearly everywhere in the corn belt.

"Our phenominal food crop last year was due primarily to the patriotism, sweat, and 'pep' of the American farmer, who from April until November had the undying honor of constituting America's first line of defense, of occupying the front-line trenches of America's slowly forming battle line.

Some Fall, But Fight On.

"Nor was this brilliant quasimilitary achievement gained without a casualty list. It is true that no farmers risked or lost life or limb in this victorious food drive, but hundreds of thousands of them, by increasing their acreage and extending their crop beyond the danger point, risked bankruptcy, and thousands of them, owing to droughts, early frosts, and other adverse conditions, actually 'went broke.' But like the patched-up wounded at the front, these unconquerable 'hayseed patriots' to-day are all practically back on the food firing line, perhaps heavily mortgaged, or working as hired men, but each and all doing their utmost to produce the food which is to keep the armies of civilization strong for battle, as they fight their way to victory and peace by way of Vienna and Berlin.

"This year's American food crops, especially wheat, give promise of being larger than last year's by a comfortable percentage. All varieties of live stock, likewise, have greatly increased in numbers. In spite of heavy exportations of horses and mules, the number remaining in this country increased by nearly half a million; milk cows increased 390,000, while other cattle increased nearly 2,000,000. Sheep increased 1,300,000 and swine increased 4,000,000.

"For the incomparable showing made by American agriculture the farmer himself by all means deserves first credit. But in all his efforts he has been constantly stimulated, aided, and abetted by the President, the Congress of the United States, the Federal Department of Agriculture, the State agricultural colleges and experiment stations, the State departments of agriculture of the various States, the various farm organizations throughout the country, and an active, intelligent, and highly patriotic agricultural press."

Modern Hives for Bees Increase Profits and Nation's Honey Stock

Hundreds of thousands of bee colonies, representing about one-third of the number kept in the United States, are housed in log "gums" and in box hives, and produce for their owners an insignificant amount of honey compared with what they might do if they were transferred to movable-frame hives and handled by improved methods.

If all the bee keepers now using box hives would adopt the modern type of movable-frame hive they would not only secure more profit from their bees for themselves but would add many millions of pounds of honey to the nation's supply, according to Farmers' Bulletin 961, Transferring Bees to Modern Hives, by E. L. Sechrist, recently published by the United States Department of Agriculture. The bulletin describes a number of the best methods of transferring from old to new hives. Much of the honey produced by colonies in box hives is wasted by crude methods of securing the crop, the bulletin states, and these colonies are reduced in earning value by uncontrolled swarming and by the annual loss of bees which die in winter because of lack of protection and sufficient food stores.

Times For Changing.

While bees may be transferred at any season when they are active, the bulletin states that the best time is during the season of fruit bloom when the combs contain little honey, and when the bees will gather nectar rather than rob honey from a hive which is being transferred. Another good time for transferring is immediately after the first swarm of the year when the number of bees in the hive is greatly reduced and when there is no danger of losing or injuring the queen. She goes with the swarm, leaving queen cells in the hive. Transferring when robber bees are active requires that the work be done inside a screened or bee-tight building.

Describes Methods of Transferring.

The bulletin describes five methods of transferring. One consists in cutting the combs from the box hive and placing them in a new movable-frame hive and transferring the bees by shaking or drumming them from the old hive. Another way is to drum the bees out and move them to new hives which have been previously provided with full sheets of comb foundation. The third method consists in catching the swarm as it issues from the old hive and immediately putting it in the new hive placed on the old stand. In the fourth method the new hive containing comb foundation is placed on the old one and an opening for the bees provided between the two. The fifth method requires a little special equipment, and takes advantage of the fact that in some localities the bees are almost sure to swarm. Place the new hive near the old one and provide it with a queen trap near the entrance in such a way that when the bees swarm the queen will be caught and the worker bees automatically will enter the new hive.

These methods are described in detail in the new bulletin, which will be sent free, so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C.

SCHOOL days would be much more interesting if the school grounds harbored many kinds of birds. Even the so-called "bad boy" soon learns that it is more fun to attract and protect the native birds than it is to harass and destroy them.

LITTLE CARE REQUIRED TO SAVE SEED

Very little care is required to save seed for a home supply of the crops of which the seeds are eaten, since the seed is well advanced toward maturity when usable. Selection is important in this group, however, especially to insure healthy seed. Any surplus dried seed of these plants may be used for food.

EGGS FOR PRESERVING USE MUST BE BEYOND SUSPICION

Freshness Imperative When They Are "Put Down" in Late Summer

Two Methods, Tested by Specialists, Are Explained—Supply for Family Table Made Available When High Prices Rule

Eggs preserved when they are abundant and cheap means a supply next winter when they may reach extremely high prices.

Late summer is not too late to preserve eggs, but care must be taken that they are strictly fresh.

Two methods of preserving eggs are recommended by specialists of the United States Department of Agriculture—they follow:

Water-glass Method.

Use 1 quart of sodium silicate to 9 quarts of water that has been boiled and cooled. Place the mixture in a 5-gallon crock or jar. This will be sufficient to preserve 15 dozen eggs; and the quantity needed to preserve a larger number of eggs will be in proportion.

First, select a 5-gallon crock and clean it thoroughly, after which it should be scalded and allowed to dry.

Second, heat a quantity of water to the boiling point and allow it to cool.

Third, when cool, measure out 9 quarts of water, place it in the crock, and add 1 quart of sodium silicate, stirring the mixture thoroughly.

Fourth, place the eggs in the solution. Be very careful to allow at least 2 inches of the solution to cover the eggs.

Fifth, place the crock containing the preserved eggs in a cool, dry place, well covered to prevent evaporation. Waxed paper covered over and tied around the top of the crock will answer this purpose.

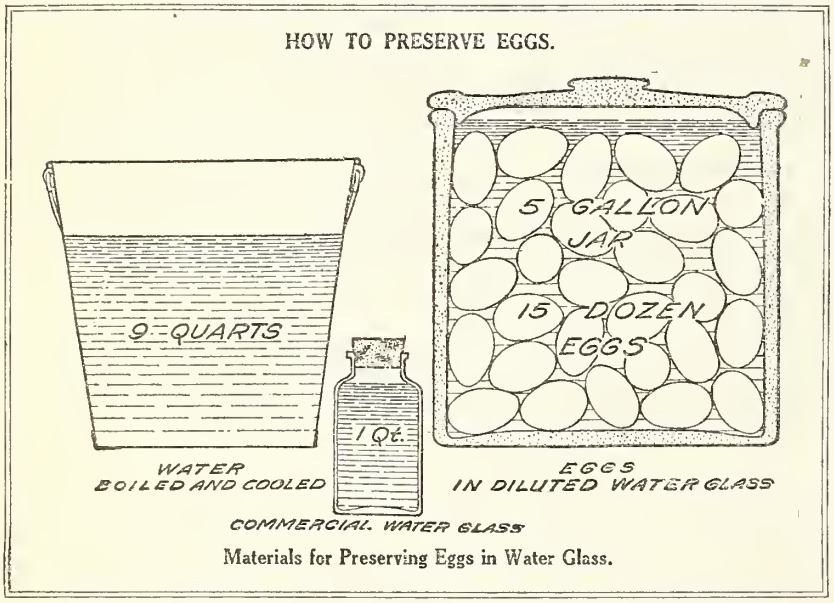
Lime Method.

When water glass can not be obtained the following method may be used in its stead. Many consider this method entirely satisfactory, though instances are known in which eggs so preserved have tasted slightly of lime.

Dissolve 2 or 3 pounds of unslaked lime in 5 gallons of water that has previously been boiled and allowed to cool, and allow the mixture to stand until the lime settles and the liquid is clear. Place clean, fresh eggs in a clean earthenware jug or keg and pour the clear limewater into the vessel until the eggs are covered. At least 2 inches of the solution should cover the top layer of eggs.

Sometimes a pound of salt is used with the lime, but experience has shown that in general the lime without the salt is more satisfactory.

A good lawn, free from weeds, is a pleasure and a satisfaction worth far more than the effort and expense necessary to maintain it.



Materials for Preserving Eggs in Water Glass.

GOOD STANDS OF BEETS INCREASE SUGAR FOR AMERICA AND ALLIES

A perfect stand of beets with the usual width of row and the proper distance of spacing would consist of from 30,000 to 40,000 plants to the acre, the United States Department of Agriculture points out. If each of the beet roots harvested weighed 1 pound, which is below the average in most fields, there should be 15 to 20 tons of roots per acre.

As a matter of fact sugar-beet stands as a rule are only from 50 per cent to 80 per cent perfect at harvest time, and consequently the average yield of beets in the United States is about 10 tons. Absolutely perfect stands are not to be expected, considering the many enemies and adverse conditions that affect the stand and the large sugar beet area, which is now nearly 700,000 acres annually.

However, it is believed there should be no difficulty in maintaining a much better stand than is ordinarily obtained, thereby increasing the yield per acre. Careful attention has been given to this factor in beet production in the past few years. By actual count in many fields in all parts of the sugar-beet area it has been found that the stand at harvest time very frequently is as low as 50 per cent and very seldom is the stand more than 80 per cent perfect.

Many of the sugar-beet stands at this date are very satisfactory.

In order to keep good stands of beets, prevent the surface soil from becoming hard after planting by cultivating frequently, avoid covering or tearing up the growing plants, and fight diseases, insects, and rodents.

How to Identify and Use Bent Grasses Told in New Bulletin

Information that will enable seedsmen and farmers to clear up confused ideas regarding the identification and uses of the bent grasses commonly grown in the United States is given in Bulletin 692, "The Agricultural Species of Bent Grasses," recently published by the United States Department of Agriculture.

The bulletin is divided into two parts. The first part contains a discussion of red top, fiorin, Rhode Island bent, colonial bent, velvet or brown bent, and carpet bent. Rhode Island bent, according to the bulletin, is a common grass in New England and is valuable for lawns and golf courses. For making a fine turf it is excelled only by velvet and carpet bent, which occur in the trade only in mixed seed from Europe. Velvet bent makes the densest, finest turf, carpet bent the next best, Rhode Island bent a slightly coarser turf, while that produced by red top and fiorin is much coarser.

Part two of the bulletin gives a discussion of the distinguishing characteristics of the seed of these grasses which occurs in commercial trade. The kinds of seed are illustrated, together with the principal impurities found with them. Misbranding in the trade occurs chiefly in the substitution of red-top seed for seed of the other grasses, but a study of seed characteristics, as given in the bulletin, will enable seedsmen and farmers to distinguish red-top seed from that of the finer grasses, more desirable for growing turf.

THOROUGH PACKING NEEDED IF SILAGE IS TO KEEP WELL

Preservation Depends Largely Upon Excluding the Air

Cut Corn When Kernels Have Passed Milk Stage and Begin to Dent—Cutting Should Produce Short Lengths

Cut corn for silage when the kernels have passed the milk stage and are beginning to dent, United States Department of Agriculture specialists advice. At this period the greatest amount of food material can be obtained and the best quality of silage made.

The cutter should be adjusted to cut the corn in short lengths, with three-fourths of an inch as the maximum length. In general the finer the fodder is cut the more easily and more compactly it can be packed and in consequence the better the quality of the silage.

Thorough Packing Necessary.

Too much stress can not be laid upon the necessity of thoroughly packing the fodder in the silo so as to exclude the air as much as possible. It is upon this one thing that the keeping of silage largely depends. A device consisting of a jointed pipe, or some variation of it, attached to the top of the blower pipe is at present in use for distributing the cut corn fodder in the silo. By the use of this distributor it is possible for one man to scatter the cut corn evenly and at the same time to tramp it. Without the use of this device it is necessary to have at least one extra man in the silo to fork the material over so that it is evenly packed. Besides the saving of one man's labor, the distributor does away with the nuisance of having the loose material flying around, thus annoying the man in the silo, and also lessens the danger of being struck by some foreign object that may have passed through the blower.

Add Water at Cutting Time.

Oftentimes the corn fodder is so dry when it is cut that it is necessary to add water to make up for the deficiency in moisture and provide for the proper packing of the silo. This water is most easily added to the blower when the corn is being cut, and it is also more thoroughly mixed with the cut material in this way.

For the top layer of the silo it is good practice to use heavy green stalks from which the ears have been removed. This forms a heavy layer that packs well and at the same time contains a smaller amount of food material so that the minimum loss is sustained if it spoils. Various methods and materials have been used for covering the top of the silage to prevent its spoiling. None has given complete satisfaction, but the one mentioned above has given as good results as any, especially when the top layer was thoroughly wet down and packed firmly by tramping. The best practice is to commence feeding as soon as the silo is filled, in which case there will be no loss of silage through decay.

USE OF PHOSPHATE ROCK AS A FARM FERTILIZER IS INCREASING

Acid phosphate, which is used extensively as a commercial fertilizer, has doubled in price during the last few years. Farmers of this country, according to the United States Department of Agriculture, are now facing serious shortage of this material, because the munitions industry is consuming much sulphuric acid which would ordinarily be used in the manufacture of acid phosphate.

This situation has led users of fertilizers to give greater consideration to the use of ground raw rock phosphate. That this source of phosphorus is being used as fertilizer more extensively is shown by the fact that during 1916–17 at least six large companies entered the raw ground phosphate business and the annual consumption of this material has increased during the last decade to over 91,000 tons, involving an expenditure to the farmer of at least $750,000.

Ground raw rock phosphate is far less soluble than acid phosphate. Its effectiveness appears to be due largely to its thorough distribution in the soil, say specialists of the Department of Agriculture. This is brought about by liberal applications of very finely ground rock together with good tillage. When all these conditions are not fulfilled, it may take several years to obtain the distribution giving the maximum effect. The beneficial effects of a comparatively heavy application of finely ground rock phosphate extend over several years, as a portion of the phosphate becomes soluble each year. These increases in yields are greater, as a rule, in subsequent years.

To be most effective ground phosphate rock should be applied to soil that is well supplied with organic matter. Such soils are always richer in carbonic acid than those of low organic content, and this acid is important in effecting the solubility and availability of the phosphate rock. Bacterial activity, which is more noticeable in soils high in organic matter, is also valuable in aiding the solubility of rock phosphate.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for lithographer, for men only. A vacancy in the Weather Bureau, Washington, D. C., at $1,200 a year, will be filled from this examination. Date of examination, August 27, 1918. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistant in cotton classing (male). Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salary of $1,600 to $2,400 a year, will be filled from this examination. Date of examination, August 27, 1918.

Specialist in agricultural economics, grade 1 (male and female), to fill vacancy in the States Relations Service, Department of Agriculture, and vacancies requiring similar qualifications, at $1,800 or over a year. Examination August 27, 1918.

Applicants for above positions should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

DAIRY COW AN ECONOMICAL PRODUCER

Two facts stand out prominently as reasons for the increased production and use of milk. The first is that milk as purchased on the market usually supplies food material together with the growth-producing elements more economically than either meat or eggs. The second reason is that the dairy cow is the most economical producer of animal food. One great law of food conservation is to turn inedible feeds into edible foods in the cheapest possible manner. The dairy cow will utilize coarse materials, inedible to humans—such as grass, cornstalks, hay, etc.—and will turn them into milk. Other farm animals also are converters of coarse roughage into edible foods, but are not so efficient as the dairy cow.

MILK IN THE DIET

In the food consumed by the average family milk and its products furnish 20 per cent of the heat units; in fact, scarcely a meal is served without some dairy product. It is doubtful whether there is a more widely used food in the world than milk or some of its products.

Children, who require growth-producing foods, and invalids, whose bodies have to combat disease and repair wastes, require milk.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Government Ships Fish by Carloads.

Carload lots of fish are being shipped regularly each week from the Gulf of Mexico to Nashville, Louisville, and Indianapolis in order to provide those inland cities with fresh fish at low prices. Transportation is being taken care of by an agent of the United States Department of Agriculture working with the Railroad Administration. The distribution of the fish is under the direction of the Federal food administrators of the States and cities in cooperation with the United States Bureau of Fisheries. Plans for extending this service to other cities are now being made.

Wheat and Rye Conference.

Plans for carrying out the wheat and rye planting program of the United States Department of Agriculture for 1918–19 in the Central West were considered at a conference of officials of the department and State representatives, held in Chicago, July 25 and 26. State agricultural college extension directors and wheat specialists from 10 States were present. These States—Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, Missouri, Minnesota, Wisconsin, and Michigan—have been asked by the department to plant a little more than 27,000,000 acres of winter wheat or practically three-fifths of the acreage suggested as a minimum for the entire United States. Every State representative at the conference felt confident that the minimum acreage allotment for his State could and would be planted, and that if conditions continued favorable the maximum acreage suggested by the department might be reached.

City Men Good Farm Workers.

Use of city men as farm workers in emergency seasons has demonstrated not only that many men employed in cities and towns were reared on farms and are skilled in harvest labor, but also that city men can stand the heat and exertion of the harvest field, and attack their tasks with willingness and patriotic enthusiasm. This was reported by the Federal farm help specialist in Kentucky at the Department of Agriculture's recent harvest labor conferences in Birmingham, Ala.

Supply Shipbuilders With Milk.

Twelve refrigerator milk cars were recently put in operation in Virginia through the efforts of the Bureau of Markets and interested local dairymen and milk distributors. Before these cars were sent to Virginia there was a surplus of milk produced in the valleys in the ewstern part of the State, but because of lack of adequate transportation facilities it could not be transferred to Norfolk, Newport News, and other coast points where the increasing population of shipbuilders and industrial workers had intensified the demand for milk. It was ascertained that the valley section would have in excess of local demand approximately 6,000 gallons of milk for shipment daily, and the amount needed for Government use alone at the coast points was 12,000 gallons daily, an amount too large for the eastern and central sections of the State to furnish. Shipments are now being made at the rate of three cars a day, which is solving the problem of both consumers and producers.

The Department at the Swine Show.

About 20 representatives of the Animal Husbandry Division of the United States Department of Agriculture will attend the National Swine Show to be held at Cedar Rapids, Iowa, September 30 to October 5. They will watch and assist in the judging and meet the hog breeders of the country. One feature of the show will be the Government exhibit of 1,000 pounds of cured meat to be sent from the Government experiment farm at Beltsville, Md. Farmers and others in attendance will be given an opportunity to learn how properly to cut up the carcass of a hog and cure the meat. Government experts will give demonstrations in this work daily. This year's swine show will be the third annual exhibit. Last year about 1,500 head of hogs from 23 States were exhibited at Omaha.

Commend Sunday Farm Work.

Judges in Tennessee have refused to punish persons accused of work on farms on Sundays, but have commended them for so doing. This was reported to the Department of Agriculture's recent farm labor conference in Birmingham, Ala. Not long ago the rural churches of Indiana, in a conference at Purdue University, took the position that it is quite right and proper to do farm work on Sunday if that Sunday work is necessary to produce food crops to help whip Germany.

Food Lessons in Department Stores.

Department stores in many of the large cities have called on home demonstration agents to assist them in giving instruction in food conservation to their customers and employees. In some stores special rooms have been equipped where demonstrations are given and literature distributed. Attractive booths have been set in the aisles of others where exhibits of war cooking are shown and recipes are given out. The agents have worked with the window decorators in planning window exhibits. In many places wheat substitutes have been featured in demonstrations, and each purchaser has been supplied with recipes and instructions for using them. Classes for employees after hours have been arranged. In some cities the agent meets these groups regularly every week.

Stuart on Price Fixing Committee.

The War Industries Board has announced the appointment of ex-Gov. Henry C. Stuart, of Virginia, as a member of the price fixing committee of that board. Gov. Stuart brings to the committee a broad knowledge of matters pertaining to agriculture. He is chairman of the agricultural advisory committee appointed by the Secretary of Agriculture and the Food Administrator.

Cooks Learn How to Save.

More than a hundred cooks in the Fenway section of Boston, Mass., have received expert instruction in food conservation from one of the city home demonstration agents. A house-to-house canvass was made in that part of the city to invite housekeepers to enroll their cooks for a course of five lessons in war cooking. Five classes were organized with 25 to 30 cooks in each class. The lectures were given in the living rooms of different homes in the district. In the South many women have sent their colored cooks to the home demonstration kitchens to receive instruction in carrying out the food regulations. In Cedar Rapids, Iowa, the agent is giving help to a group of cooks who are preparing a cook book which they expect to sell.

Service League Helps Farm Labor.

Wherever the Uncle Sam Saturday Service League has been organized among Negroes in the Southern States it has im-

proved labor conditions, according to reports at the recent conference of State farm help specialists in Birmingham, Ala. Members are given buttons signifying their intention to work six days a week until the end of the harvest season, thus combating the time-honored custom of a full or half holiday on Saturdays among farm hands.

A Market Service for Washington, D. C.

The Bureau of Markets is establishing its local market reporting service for consumers in Washington, D. C. Daily reports will be issued through the newspapers to keep the housewife informed as to market supplies and prices in order that fruits, vegetables, meats, and possibly fish may be purchased to the best advantage. This service is intended to meet in part the local marketing situation created by the great increase of Government workers during the past year. Similar services are now established in 12 cities.

Licensed Warehouses for Cotton.

That licensed warehouses for cotton are attracting increased attention is indicated by more than 300 inquiries recently received by the Bureau of Markets. To secure licenses, warehouses must comply with certain requirements as to construction and operation which are intended to put the business of warehousing on a firm basis. Uniform receipts are a feature of the licensing and these enlarge the field for discounting cotton paper. Another feature is the reduction of insurance rates which may result under Federal license. Rates now vary from 25 cents to $2.50 on $100 worth of cotton in storage. Reasonable storage rates, made possible through economies on insurance and management would, it is said, encourage growers to store cotton and so decrease the amount of "country damage" caused by keeping cotton on the farm without adequate protection.

Community Fairs Teach Conservation.

County home demonstration agents are making it possible for many community fairs to serve as real conservation schools for the women who attend them. In some cases special buildings have been provided for women's work, which not only house the exhibits prepared by the women in the community but afford places where modern household equipment and labor savers are shown and where demonstrations are given. At many of these local fairs the agent arranged for demonstrations in canning and drying, in making bread, cheese, butter, and soap, in dressmaking, in laundrying, and in fuel saving.

Men Must Prove Their Useful Work.

The city of Augusta, Ga., requires every man to carry a card showing his occupation. Compulsory work laws have been passed by many cities, and an antiloafing law was pending in the State legislature in mid-July, when these facts were reported to the conference of Federal farm help specialists in Birmingham, Ala.

County Agent Starts Creamery.

The establishment of a cooperative creamery in Wilson County, Tenn., less than two years ago and the success it has attained is an example of the benefits county agents are giving the farmers they serve. Two years ago there was very little dairying in Wilson County, only three men being engaged in shipping cream and no one shipping milk. Through the efforts of the local county agent, dairy extension specialists, and a number of interested farmers a cooperative creamery was established which now has 229 regular patrons. From this start a cow-testing association, one of the best in the State, has been organized; 46 silos were built last season and a number of dairy barns were replanned and furnished with modern dairy equipment. Three pure-bred bulls have been brought into the county and several men bought new dairy cattle. The creamery manufactures as much as 500 pounds of butter a day. The patrons received last winter 50 cents a pound for butterfat whereas two years ago they were receiving 16 cents a pound for country-made butter.

Women and Children Help Save Cotton.

Ten white women of Ringgold, La., went into the cotton fields near that town, chopped 17 acres of cotton and turned over the money to the Red Cross. Community women's organizations in Georgia have asked that the opening of schools be deferred so that children may help pick the cotton crop endangered by the scarcity of farm help. These instances of the part women and children are taking in handling the South's big crop, were described at the Department of Agriculture's recent farm labor conference in Birmingham, Ala.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 3, 1918:

Heavy Loading of Freight Cars in the Transportation of Northwestern Apples. Bureau of Markets Doc. 13.

A Serious Eelworm or Nematode Disease of Wheat. Secretary's Circular 114.

General Regulations Governing Licensees Operating Stock Yards, or Handling or Dealing in Live Stock in or in Connection with Stock Yards. Secretary's Circular 116.

Citrus-Fruit Improvement: A study of Bud Variation in the Valencia Orange. Department Bulletin 624.

The Southern Green Plant-Bug. Department Bulletin 689.

Recent experimental work on poisoning cotton-boll weevils. Department Bulletin 731.[1]

American Sumac: A Valuable Tanning Material and Dyestuff. Farmers' Bulletin 706.

Raise Pigs. Library Leaflet 2.

Raise Sheep. Library Leaflet 3.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

[1] Incorrectly listed as Farmers' Bulletin 731 in WEEKLY NEWS LETTER of July 7, 1918.

Cottonseed Oil Refiners Meet to Discuss War-Time Policies.

Cottonseed oil refiners representing the industry nationally met at the Food Administration in Washington, August 14, for a general conference on policy during the coming season, with an especial eye to wartime needs. Other conferences will be held later for stock feeders and fertilizer manufacturers.

Cost of cotton ginning this year will be at least 25 per cent higher than last, according to Food Administration estimates, largely because of increased cost of labor. A zoning system like that established last year, based on varying oil and meal yields in the several districts, is under discussion. The Department of Agriculture is collecting data on the oil and meal yield, to be submitted to the Food Administration.

New rules and regulations to guide buyers and sellers of cotton seed and peanuts, as well as cotton ginners, gives especial consideration to proper handling and conservation of oil as a war necessity. No dealer under Federal license may sell cotton seed for more than $3 a ton in excess of his purchase price; or more than $1.50 profit if others than himself share the risks and provide facilities for conducting the business.

Brokers and dealers who operate in carload lots may not receive a compensation greater than 25 cents per ton. Especial emphasis is laid upon keeping seed clean. Wasteful practices are forbidden, and as a measure to conserve oil it is provided that cotton seed may not be sold for feed or fertilizer without consent of the Food Administration. Sales in all cases are to be made at a reasonable margin over cost, without regard to replacement value.

Copies of Special License Regulations No. 9 will soon be mailed to all licensees operating cotton gins or oil mills or buying cotton seed.

Insect pests and plant diseases that appear only occasionally command much more attention in proportion to the damage they cause than do weeds, because they are more or less a novelty and farmers are not accustomed to them.

A Message from the Secretary of Agriculture to American Farmers

TO THE PATRIOTS ON THE FARMS:

You are asked to undertake another offensive—to go "over the top" this fall for a great harvest of wheat in 1919. I need give only a few figures and facts to impress you with the increasing and urgent need of our people, our armies, the allied peoples and their armies for large supplies of American wheat.

Our reserve supply or carry-over from the 1917 crop is practically exhausted and is the smallest on record. The need of building up reserves of wheat is evident. Although this country produced a small crop of this grain in 1917, the total exports of wheat in excess of imports, including flour in terms of wheat, amounted to approximately 100,000,000 bushels for the year ending June 30, 1918. This is in comparison with 178,000,000 bushels exported in 1917, 236,000,000 bushels in 1916, and 331,000,000 bushels in 1915. It was possible for the United States to export wheat in large quantities in 1915 and 1916 only because of the large wheat crops of 1912–13–14–15, which gave this country an accumulation of stocks of this grain. Both the 1916 and 1917 crops were smaller than any crops since 1911 and besides this there was a greater demand for seed wheat and an increased population to be fed.

Moreover, it must be borne in mind that the carry-over in all the ten importing countries in Europe was practically exhausted this year before the new harvest; that the normal requirements of the exporting countries are increasing instead of diminishing; that some losses in storage and transit may be expected to continue; and that it is highly desirable that a surplus should be accumulated as insurance against partial crop failure next year.

You have been asked to sow to winter wheat this fall not less than 45,000,000 acres—an increase of 7 per cent over last year's sowing—and the department has suggested that an even greater area, 47,500,000 acres, is desirable. The increased planting asked of each State has been carefully determined with regard to its local conditions and its reasonable capabilities. Your county agent can tell you the quota assigned to your State and you can apply the responsibility to your case.

You have occupied and do occupy the first line trenches of the food army. You have to fight difficulties too. I am not unmindful of these. In the Department of Agriculture we consider them daily, and daily we give our best efforts to help you meet them. You know of the difficulties in your community, but I know of them in many communities of many States, and so seriously do they impress me that I might almost consider them insurmountable had not American farmers last year, and again this year, revealed the true American fighting spirit and ability to meet serious situations. They will not let the war fail because of deficient food production.

Let us sow liberally for a big harvest in 1919. It has been called the Liberty Wheat Harvest. We all hope it will be. But let us undertake the task with the determination that we will sweat our blood for many more if need be before we yield one measure of our freedom to a Prussian domination. Let us fight in the furrows.

D. F. Houston

Secretary of Agriculture.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI AUGUST 21, 1918 No. 3

CORN IN WEEVIL-PROOF SHUCKS BEST TO SAVE FOR PLANTING

Care Taken in Harvesting Will Prevent Damage Now and in the Future

Well-Protected Ears, Stored in Their Natural Wrappings, Are Most Likely to Produce an Insect-Proof Strain

Grow the best shuck-protected corn; store the weevil-proof ears in their shucks; shell and clean and feed, or sell, the unprotected ears as early as possible.

That is the general plan for reducing insect damage, now and in the future, recommended to the average corn grower in southern weevil-infested sections by specialists of the United States Department of Agriculture. The measures should be put into effect now, as the crop is harvested and as seed for planting next year is selected. In Farmers' Bulletin 915, How to Reduce Weevil Waste in Southern Corn, recently published, a specialist describes in detail the measures recommended.

Harvesting should be done as soon as the corn is sufficiently dry, the specialist says, in telling how to handle this year's crop to insure a minimum loss from weevils. After harvesting, the ears should be sorted into two classes—an operation which can be done rapidly indoors with ordinary farm labor at a time when it is too wet or stormy to work in the field. The first class should include all of the ears that apparently have weevil-proof shucks. These ears may then be stored in their shucks until such time as they are needed.

Weevil-Infested Ears

The second class should include all ears with tips protruding beyond the shucks, with loose or open shucks, and any others that are probably infested with weevils. These ears require immediate attention to minimize the insect damage, as the weevils in them will continue to multiply except during the coldest part of the winter. Ears showing light infestation should be shelled and the grain cleaned to remove the live weevils. If necessary to store corn that does not have good shuck protection, damage will be reduced if the corn is shucked, shelled, cleaned, and put in bags of close-woven cloth.

The shelled corn must not be stored in large mass or it may heat during periods of high temperature. A slatted crib lined with galvanized-wire netting having ¼-inch meshes is ideal for the storage of the bags of grain, as it provides good ventilation and excludes rats and mice. Fall and early winter injury by weevils in corn from poorly protected ears can be prevented by fumigating if one has a gas-tight storage bin. Farmers Bulletin 799, Carbon Disulphid as an Insecticide, tells how fumigating can be done.

The importance of selecting for seed ears well protected by shucks that extend tightly several inches beyond the tips of the ears is pointed out by the specialist. It is best to make the selections in the field. But whether seed corn is selected in the field or from the bin, it is desirable not only to select the best ears but to be sure that the ears have long, tight shucks. Such selection now will insure better shuck protection in future crops against insects—the corn ear worm as well as the weevil.

DON'T PLANT SMUTTED SEED

Smuts and some other diseases of seed wheat can be prevented entirely by proper treatment. These treatments have been published widely and are available to all. The Department of Agriculture and State authorities are spending large sums of money in helping to eradicate smut. This preventable disease should not be permitted to take part of the wheat needed by ourselves and others. The treatments are simple and cheap. Treat for smut and sow clean seed.

Dairying is one of the largest of the agricultural enterprises of this country and the war demands upon it will be in proportion to its importance.

WOODY STEMS OF YUCCA YIELD DROUGHT-TIME FEED FOR STOCK

Southwest Desert Shrubs Carry Cattle Over Periods When Range Plants Fail

Soapweed Will Prevent Starvation if it is Cut Into Small Pieces and Used as Emergency Ration During Shortage of Other Forage

An emergency drought-time feed for southwestern stockmen which has previously been overlooked is the desert shrub locally known as soapweed. Its scientific name is Yucca. While this plant is not high in nutritive value nor suitable for feed until it has been properly ground, the specialists of the United States Department of Agriculture have found that in seasons of drought when range grasses and other sources of feed fail, it can be used to save cattle and sheep from starving. By the addition of a little cottonseed meal with ground Yucca a fairly well-balanced ration is made. By using this feed without waste in dry seasons only, a fair crop will always be available. If it is used properly and due regard given to conserving the present supply, thousands of cattle may be saved during the drought season to add to the Nation's meat supply.

There are a score or more species of Yucca. Sotol has been utilized as stock feed for some years, but only recently have soapweed and bear grass, two other forms which grow abundantly, been utilized in this way. Both of the latter are well adapted for feed, but because the food material is found mainly in the tree-like trunk it is necessary that they be ground or chopped finely before stock can eat them.

Machines for Cutting Yucca

The machines used for cutting Yucca have heavy cylinders carrying teeth or knives that rotate before a chopping block to which the plants are fed. One of the larger machines run by a 12 or 14 horsepower engine with a crew of three men will

chop or shred about 2 tons of soapweed an hour.

If fed alone, this feed may be expected to keep stock from starving; if fed with concentrates a properly balanced ration may be worked out. The customary practice among users of this feed is to give young stock 6 to 12 pounds per day with one-half to three-fourths of a pound of cottonseed cake or meal. Mature stock are given 20 to 40 pounds and 1 to 2 pounds of the cottonseed concentrate daily. Fifteen to twenty-five pounds per day fed alone will save stock from dying. Practically the only cost in using this feed is in its preparation, and it is estimated that when 20 pounds is fed per day this cost amounts to only 50 cents per month.

Yucca should be regarded as an emergency feed only, the specialists say. It makes a very slow growth and only two species—soapweed and bear grass—may be expected to renew themselves if cut off. The bear grass of the New Mexico-Texas plains region will produce a new crop in 3 or 4 years, while soapweed requires from 10 to 15 years.

FOOD FISH FROM THE GULF FOR MISSISSIPPI VALLEY CONSUMERS

Thousands of Pounds Supplied Through Efforts of the Government

Two hundred thousand pounds of fine fish have been supplied to housewives in Nashville, Louisville, and Indianapolis through the cooperation of the United States Department of Agriculture, the United States Bureau of Fisheries, and the United States Food Administration. Regular weekly shipments of carload lots are being made to these three inland cities from points on the Gulf of Mexico in order to encourage the use of less meat by an increased consumption of fish. An agent of the Department of Agriculture is working with the Railroad Administration in handling the transportation, and the distribution is under the direction of State and city food administrators in cooperation with the Bureau of Fisheries.

Ten carload lots aggregating more than 200,000 pounds have already been distributed in this way. Each dealer notifies the local food administrator how many pounds he will need for his trade and he is supplied with his share immediately upon the arrival of a car. Dodgers are distributed calling the housewives' attention to the fish, and telling how best to cook them. Sea mullet, sea catfish, sheepshead, trout, and hardtail are some of the varieties that have found favor with the women. Plans are now being completed to ship fish from the North Carolina coast to Pittsburgh.

Secretary Houston Describes Work of Women in Food Production

In response to a request from the woman's committee, Council of National Defense, Secretary Houston sent the following letter to Miss Marion Hughes Scott, of the committee, outlining some of the things that women may do and are doing in the field of Agriculture:

Dear Miss Scott: It is very difficult for one to indicate the things that women may do in the field of agriculture. I know of scarcely anything that some of them may not do and are not doing somewhere. The six and a half or seven millions of farm women, in addition to their onerous domestic duties, are aiding production along many lines. Many of them work in the fields; many of them assist in planting, in cultivation, and in harvesting. Hundreds of thousands of women and girls in rural districts, especially through the clubs, take active part in poultry, hog, and dairy production. They assist in raising home gardens and in making the home self-sustaining. They conserve vast quantities of materials for future use as food by drying, canning, and preserving. It would be impossible to overestimate their service in food production. It would be equally impossible to exaggerate the part they play in conserving food itself.

I assume that your committee has in mind more especially women in towns and cities. These women can probably render their largest service by conserving materials for future use as food by canning, drying, and preserving, by conserving food itself, and by assisting in planting and cultivating home gardens. In doing these things they not only contribute to the food supply of the Nation directly, but also reduce the difficulties in marketing and relieve the burden on transportation. There are in towns and cities many women who have been brought up on the farms or who have some farm experience. They can unquestionably, especially with some previous training, take an effective part in planting, cultivation, and harvesting. Even those who have not had such experience may, by taking proper steps, qualify themselves for effective assistance in these directions. Another aid that they can render by careful thought and planning is through the relief they can furnish to farm women in their homes, thus releasing to this extent the more experienced women of the country districts for the more difficult farm tasks.

I have the feeling that the women themselves, especially after the many recent months of reflection and experience, have discovered for themselves quite as fully as anyone could reveal to them the lines along which they might render service not only in agriculture but in all other directions. It is amazing how much they are doing to assist the Nation as nurses, in the Red Cross, in the liberty loan campaigns, in war savings of every character, in industry, even in its most difficult forms, and in agriculture.

Very truly, yours,

D. F. Houston.

DEALING WITH CONTAGIOUS DISEASES

In dealing with contagious diseases of cattle the basic principle of prevention is to keep carriers of infection away from the herd. Next in importance is maintaining the surroundings in a sanitary condition. Following this, the animal's natural resistance to disease should be increased by natural and occasionally by artificial means. Ordinarily, disease stalks about the country only in the bodies of diseased animals or attached to some intermediate object; these may include healthy or recovered animals, contaminated feed and water, infected cars and pastures, or the shoes or clothing of some inquisitive person who insisted on seeing the diseased stock. Avoiding such diseased animals and keeping healthy ones away from carriers of infection are the important methods of preventing disease.

The lack of immediate action upon the part of the farmer when he discovers animals that show symptoms of disease or sickness often is responsible for the loss not only of his own stock but for that of his neighbors. At this time when every step should be taken promptly to avoid losses and to conserve production, it is all the more important that the farmer with sick cattle should get in touch at once with the local veterinarian or county agricultural agent.

LIVE-STOCK RECEIPTS IN JULY

Increased receipts of cattle, hogs, and sheep at 34 cities during July, 1918, compared with receipts at the same cities in July, 1917, are shown by the stockyards report at the Bureau of Markets, United States Department of Agriculture. July receipts for the two years at the 34 cities which include most of the large markets, with 1918 figures first, were: Cattle, 1,897,847–1,552,573; hogs, 2,813,749–2,395,226; and sheep, 1,409,868–1,174,335.

DIRTY POTATO CELLARS WASTE MUCH OF THE CROP

Decay Results from Putting the New Harvest Into Foul Storage Places

Efforts at Production Futile if Rot Spreads from Unclean Surroundings—Clean Bins and Disinfect Them Before Using

Clean up the potato cellars now and don't wait until harvest, says the United States Department of Agriculture in pointing out that the potato crop promises to be a big one, and that there is no excuse for allowing losses by rot in storage.

Among the suggestions the department makes are the following: Get rid of every bit of vegetable matter in the storage cellar; sweep and brush until it is clean; then give a thorough dose of fungicide, either gas or spray, the quickest and easiest to apply being formaldehyde gas.

Fungicides to Use

For each 1,000 cubic feet of space use 10 ounces of formaldehyde and 5 of potassium permanganate. Pour the formalin over the permanganate in a deep container, and then leave the cellar immediately, because the gas is given off at once.

Should it be found that these chemicals are too expensive, the department recommends a bordeaux mixture of 5–5–50 strength. It may be applied with hand sprayer, pump, or broom; it is effective when thoroughly used and it does not cost much.

It is expecting too much, says the department, to look for potatoes fit for market from a dirty, ill-ventilated cellar. Time, money, and work spent in growing a crop are wasted if the potatoes are stored where dead potatoes are carrying over the organisms that cause rots. Dry rot attack newly stored potatoes through bruises and wounds and spreads throughout the stored supply.

Many Cellars Polluted

Many farmers, it is stated, have cellars that now contain piles of sacks of potatoes, all rotten, sacks and all, and constituting a wet, foul mass that helps to decay the timbers and menaces the crop to be stored.

While there is no way to estimate the loss due to the neglect and uncleanliness in potato storages, it is known to amount to a great deal, not only in spoiled human food but in rotten sacks, and in actual money spent in the labor of handling unmarketable material, and in lowered market value of what is left to put on sale. There never was a time, urges the department, when something to eat was so valuable as now, and when so much effort has been expended in food production. For the same reasons there never was a time when the prevention of this waste was so important.

Hoarding and Profiteering in Farm Equipment Defined by Department

Selling goods on a replace value basis in certain cases will be considered profiteering, according to a statement issued to-day by the Office of Farm Equipment Control of the United States Department of Agriculture, which administers the licensing of the farm-equipment industry under the food-control act.

Farm equipment held, contracted for, or arranged for by any manufacturer, wholesaler, retailer, or other dealer in excess of the reasonable requirements of his business, for use or sale by him in a reasonable time, is considered hoarding under the meaning of the act of Congress approved August 10, 1917, "to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel."

Any farm equipment that is hoarded can not be considered under this ruling, the statement says, but will be dealt with under the act according to the merits of each particular case.

Must be Consistent

The prices of farm equipment are more or less seasonal, but if the price should rise or fall during the season, then to be consistent a person who wishes to sell on the basis of replacement values would be obliged to sell at a loss if the price fell. Equipment carried over from one season to another—that is, the residual from a previous season's reasonable supply—should be considered in the same manner. Therefore, if persons have sold at replacement values they must continue to do so when a drop in prices comes and carry the same amount of stock as in the beginning throughout the period of the high prices in order not to profiteer.

In short, says the statement, it will not be considered profiteering if farm equipment is sold on the basis of replacement prices, provided the goods sold are replaced at once at replacement prices and this practice is continued during the period of high prices caused by the war.

Profiteering Explained

It will be considered profiteering if manufacturers, wholesalers, retailers, or other dealers having a regular stock of farm equipment sell out at replacement value during rising prices without replacing the stock or intending to replace it, and selling at replacement values when prices are falling. Manufacturers, wholesalers, retailers, or other dealers desiring to sell out without replacing should sell at cost price plus a fair usual profit.

It will be considered hoarding if any manufacturer, wholesaler, retailer, or other dealer holds, contracts for, or arranges for a quantity of farm equipment in excess of the reasonable requirements of his business for sale by him over a reasonable time. Manufacturers, wholesalers, retailers, and other dealers finding themselves inadvertently in this position should sell at cost plus a fair usual profit.

HOW TO INCREASE MILK PRODUCTION

How to obtain large production most economically is the great problem of every dairyman. Economical production depends primarily on selection, breeding, and feeding, care and management. It requires that all unprofitable cows be eliminated, that the remainder be bred to first-class bulls, and that each cow in the herd be fed a properly balanced ration according to production. It also requires the intelligent feeding, care, and management of calves and young stock.

KEEP ZINC AWAY FROM YOUR PRESERVES

Do not use galvanized utensils in making preserves, jellies, or fruit juices, the Bureau of Chemistry of the United States Department of Agriculture advises. Some of the zinc with which the vessels are galvanized may be changed to salts of zinc, which will give the product an acrid and astringent taste and render it unsuitable for human use. Moreover, the dissolving of this zinc coating tends to ruin the container. The use of galvanized utensils for boiling down fruit juice is especially risky.

Under normal conditions corn is, in nearly all parts of the United States, the cheapest poultry feed. But at times like the present oats are to be preferred. When corn is worth $1.50 a bushel, oats should be $0.75, and barley $1.20 a bushel to give the same value for the money, when fed to poultry, as corn.

Webworm, A Garden Pest, Gains Taste For Alfalfa—Specialists Give Remedies

The garden webworm, known as an enemy of truck crops, has become in recent years a serious alfalfa pest. The insect has caused injury in central western States, where in some cases second and third cuttings of alfalfa have been entirely destroyed. Properly timed cuttings of the crop will deprive the webworm larvæ, which cause the injury, of their main food supply and expose them to heat, thus destroying many of them and helping to decrease further damage. This recommendation is given by specialists of the United States Department of Agriculture in a new Farmers' Bulletin.

Frequently the garden webworm is not observed in alfalfa until considerable damage has been done. The leaves are stripped from the stems and the plants are webbed together by dozens of small, black-spotted, green and grayish-yellow worms or caterpillars, which hide within the webs. The presence of the web masses and moths, and the greatly wilted appearance of the infested fields, are sufficient to enable one, upon examination, to identify the cause of the injury readily. If the larvæ are present in a field in sufficient numbers, the entire cutting of the crop may be ruined. In latitudes of Kansas and Oklahoma there are apparently four generations annually, the first one appearing in May, and the last about the middle of September. In Texas the insects are present in the field during the entire year.

Has Several Enemies

Enemies of several kinds prey upon and devour this pest. The more efficient of these are toads, birds, poultry, and certain species of ants and beetles. Several parasitic enemies are also known to attack them. Notwithstanding the helpful work of these natural enemies, active control measures are necessary in saving infested fields. When the alfalfa crop in an infested field has begun to get well into bloom, or when the young shoots have begun to appear near the bases of the plants, the crop should be cut as quickly as possible. The removal of the hay at this time will cause large numbers of larvæ to perish. It is also advisable to go over the field, immediatly after cutting, with a brush drag made by attaching several short, stout branches of trees to a strong timber 10 to 12 feet in length.

Clean cultural methods are also of much value in controlling this pest. Since pigweed and lambs-quarters are its favorite natural food plants, it is important that fields, fence rows, and near-by waste ground be cleared of these and other weeds. The pest often breeds upon such weeds and migrates later to near-by alfalfa, which would escape injury if these weeds were not present.

MILITARY STATUS OF COLLEGE MAN SETTLED BY WAR DEPARTMENT

The military status of the college man in the ranks of the Students' Army Training Corps and his relation to the draft have been cleared up by a War Department decision. The student-soldier is enlisted already in the military service of the United States. Upon reaching draft age he becomes subject to registration whenever the President directs. He is then placed in class 5-D by his local board. The draft board will not include him in calls for induction as long as he remains in the S. A. T. C.

On the day the order number of the student-soldier is reached the fact is reported to the college president, to the commanding officer, and to The Adjutant General. A report upon the man's record as a student-soldier and as a scholar is put before the War Department's committee on education and special training with the recommendation that he be called at once to an officers' training camp, called to an Army camp, or permitted to complete college training by transfer to the Enlisted Reserve Corps.

PRICE OF COTTON STANDARDS INCREASED

Prices for the official cotton standards of the United States were increased to $45 for the set of 9 grades of white cotton and $55 for the set of 11 grades of colored cotton August 1, 1918. This is in accordance with an announcement just issued by the Department of Agriculture, which states that the increases have been made because of the rise in the price of cotton, supplies, and materials used in preparing the standards.

The cost of a fractional part of either the white or colored sets of standards is now $5 for each box or grade. The cost of new samples to replace old, in any box of the practical forms returned to the department, has been fixed at $4 exclusive of the box container, or at the rate of 40 cents for each sample when the number furnished is five or less in one box.

WHAT IS PREVENTION WORTH?

Tradition has it that the value of preventing and combating disease is in the ratio of 16 to 1; in other words, "an ounce of prevention is worth a pound of cure." As a matter of fact, this estimate is too low; probably 160 to 1 would be much nearer the truth. In spite of this fact, however, preventive measures are not so well known or so effective that disease can always be prevented. If animals get sick call the local veterinarian or county agent at once. As a war emergency as well as good business practice, disease losses should be prevented as far as possible.

PLOWING LAND FOR WHEAT

In most of the sections producing winter wheat early plowing results in increased yields. This is especially important when wheat follows wheat continuously, but also is true when wheat follows a green-manure crop, or corn or other tilled crop, or summer fallow. The wheat land should have at least two months to settle after plowing and before sowing, so that, with the help of the rains, it may become firm and compact beneath. The upper portion should then be well worked, just before sowing, until it is fine, mellow, and a fit place for sowing wheat.

INCREASE YIELDS BY REDUCING DISEASE

In an effort to maintain or increase our live-stock supplies the reduction of the toll taken by disease should not be overlooked. There are a large number of diseases which are very common and which seriously affect the dairy industry. Among these are contagious abortion, tuberculosis, infectious garget, cowpox, cattle-tick fever, etc., which in the past have greatly reduced the milk production of our herds.

MAKE DAIRY COWS PROVE WORTH

Every owner of dairy cows should establish a definite standard, and all cows that do not measure up to the requirements should be disposed of for beef. Whether a dairy cow should be rejected or retained should depend ordinarily on production, as shown by the milk scales and the Babcock test.

Fertility of the soil should be assured for wheat by following the best practice of soil enrichment in each section of the country.

Weeds result not only in big financial loss but also in great annoyance. Diseases, such as hay fever, could be eliminated almost entirely by adopting efficient methods for controlling the incidental weeds found along roadsides, in vacant fields, and in waste places.

SKILLED EGG CANDLERS SELDOM MAKE MISTAKES

But Inexperienced Workers Fail to Note Defects Not Easily Recognized

System of Checking Should be Enforced So Careless or Unskilled Inspectors May be Dropped or Made Efficient

Although the candling method of determining the quality of eggs in the shell is the best known for commercial grading, recent investigations conducted by the United States Department of Agriculture show that one group of eggs of inferior quality can not be detected by this system and that it is inadequate in grading still another group. The investigations, reported in Department Bulletin 702, show that experienced candlers and those using extreme care do not make many mistakes in grading eggs. Eggs with green whites and those having a normal appearance but bad odors are not recognizable by candling. White rots, more particularly mixed rots, eggs with yolks slightly stuck to the shell, blood rings and eggs with bloody whites are not always detected and are included in the group most frequently miscandled by inexperienced or careless workmen. Eggs with brown shells or light-colored yolks make detection between good and bad specimens more difficult.

Record of Skilled Candlers

In the studies with skilled candlers, who candled a number of cases of 30 dozen eggs each, the average proportion of bad eggs miscandled per case varied from 0.2 in spring firsts to 10.77 in very low-grade cold-storage eggs. The percentage of bad eggs which could not be found by recandling ranged from none to 6.93 per cent per case and depended on the grade of eggs examined. In the commercial candling of 128,587 eggs, 5,985 bad eggs were found of which 71.65 per cent were recognized by candling and the balance, or 28.35 per cent, were not found until the eggs were opened and examined individually. Then it was observed that the 28.35 per cent was divided between a group of 17.02 per cent bad eggs, which in many instances are distinguishable by candling, and a second group of 11.33 per cent consisting of types of bad eggs which can not be discovered until the eggs are broken.

The accuracy of candling depends upon the quality of the eggs and the skill of the candler, according to the bulletin. In plants having poor management and poor candlers the number of good eggs in the discards sometimes reached 11 dozen to the case. The enforcement of a system of checking the work of individual candlers, particularly in plants employing inexperienced help, was found to be the best way to maintain high efficiency and thus eliminate waste by grading marketable eggs as rejects.

Deferred Classification Farmers Pledge Themselves to Government

"We are ready with a 110 per cent increase of wheat, or whatever else your department may call upon us to do to help win the war." That is the message that 1,400 farmers of Madison County, Ind., flashed over the wires to the Secretary of Agriculture a few days ago.

It indicated also that men in deferred classifications realize that they owe a special duty to their country, for it came from farmers who have been given the opportunity to keep at agricultural production. The rest of the telegram, from H. S. Agster, rural director of the deferred registered men of Madison County, said: "Thirty-three hundred men met on Saturday and perfected the deferred registered men's organization of Madison County, Ind. About 1,400 of us are farmers. Although our corn was severely frosted on the 22d of June, we are going to increase our number of brood sows 10 per cent."

Secretary Houston's Response

In expressing the gratitude of the people of the country to this association of war farmers, the Secretary of Agriculture sent the following telegram:

"Men who have been given deferred classification on occupational grounds owe a special service to their country. That you are conscious of this special responsibility is evidenced by your patriotic action in the organization of the deferred registrants in your county. It is gratifying to the Department of Agriculture to have this expression from you pledging increased food production in face of unfavorable weather conditions. Through the county agents the Department of Agriculture has encouraged action throughout the country similar to that taken in your county."

High-Grade Butter and Larger Shipments Advised in Bulletin

Marked success of the creameries of Wisconsin and Minnesota—the two largest butter producing States in the Union—is due principally to the fact that they produce butter of good quality and in a large quantity to meet market demands. Marketing practices of creameries in these two States were made the subject of a study by the United States Department of Agriculture in cooperation with the University of Wisconsin, the University of Minnesota, and the dairy and food department of the latter State.

A report of the study has recently been published by the Department of Agriculture in Bulletin 690. The bulletin suggests that where it is possible creameries should cooperate in producing a uniform high grade of butter and make shipments to market in larger quantities than is possible when they operate separately. It urges also that creameries become better informed regarding the market conditions and outlets for the sale and distribution of their product.

Most of the creameries in Wisconsin and Minnesota buy separated cream rather than whole milk on a butterfat basis. This plan reduces the cost of collecting and enables the dairyman to keep the skim milk on his farm. Where whole milk is sold to the creameries usually the skim milk is returned to the patrons. Buttermilk also is sold to patrons to be used as feed.

A number of creameries recognizing the relation of poor cream to poor butter, which on the market sells at low price, have sought to encourage more frequent deliveries by establishing grades for cream and by paying a premium of from 2 to 3 cents a pound of butterfat for the better grades of cream. This plan has met with the approval of many dairymen, who now deliver their cream daily during the summer and every other day during the winter. A number of creameries which churn the first and second grade cream separately, showed an average increase in price of 3.6 cents a pound for the butter churned from the first-grade cream. Shipment of butter to market usually was made in iced refrigerator freight cars.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 10, 1918:

American Sumac: A Valuable Tanning Material and Dyestuff. Department Bulletin 706.

Suitable Storage Conditions for Certain Perishable Food Products. Department Bulletin 729.

How to Load Cars of Eggs. Points for Egg Shippers No. 1, Bureau of Chemistry.

Neufchâtel and Cream Cheese: Farm Manufacture and Use. Farmers' Bulletin 960.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Plan Distribution of Loan to Farmers.

The Secretary of Agriculture has designated Prof. G. I. Christie and L. M. Estabrook, assistants to the Secretary, to represent the department in connection with the making of loans to farmers in western States who have suffered crop failures during the last two years from the $5,000,000 fund set aside recently by President Wilson. Prof. Christie will have charge of the northwest section and Mr. Estabrook of the central and southwest region. A meeting of 15 county agents in the drought-stricken areas of Montana has been called by Prof. Christie at Helena, Mont., August 12. At this meeting matters pertaining to the work of the department in connection with the loans will be discussed. An office is to be established at Great Falls, Mont., where the work connected with the loan will be conducted. Mr. Estabrook will hold a similar conference of county agents at Kansas State Agricultural College, Manhattan, Kans., August 12 to 14. He also will confer with the governors of Kansas and Oklahoma and on August 15 will meet with officials interested in the matter at Wichita, Kans., where headquarters will be established.

To Find Help to Harvest Potatoes.

A campaign to secure laborers to harvest potatoes in New Jersey was begun at a meeting held August 10 at Hightstown, N. J. The governor of the State, representatives of the State Board of Agriculture, State Agricultural College, and others spoke at the meeting and urged commercial organizations of cities and towns to secure the help of employees of stores, factories, and offices. Dr. E. V. Wilcox, of the United States Department of Agriculture, told what other towns and cities have done in aiding farmers in harvesting wheat and assisting in other pressing farm work. Following this meeting a series of conferences will be held in smaller towns, where the serious need of farm help will be presented.

Forest Service Fights Fire in West.

Every available man has been put on the fire lines by the Forest Service to watch for and fight forest fires. Early in the season the fire situation in the National Forests in the West became threatening; fires occurred earlier than usual as the result of abnormally low rainfall and unprecedented heat and dry winds in the spring. The situation is considered worse than any since 1910, when fires caused about $20,000,000 damage and cost the lives of 78 employees of the Forest Service. An unusual number of dry electrical storms last spring were the cause of numerous fires, and labor shortage has combined with the bad natural conditions to increase the difficulties. In several instances soldiers have been used to assist the regular fire fighters. The plan now adopted is to have crews of five or more men established at central points, equipped for immediate action, and in direct communication with the fire outlooks. This makes it possible to use unskilled labor and men unfamiliar with the country. In spite of all difficulties the situation has not been allowed to get beyond control. Small relief from local rains is only temporary and the danger will not be removed until the regular fall rains set in.

Illinois Farm-Labor Needs Met.

In spite of the fact that approximately 25,000 experienced farm hands in Illinois have been inducted by the draft and many thousands more have either voluntarily enlisted or gone into competing industries, that State is producing its greatest food crop this year, and the farm-labor needs have been and are being cared for. This is the report made by Samuel Insull, chairman of the Illinois State Council of Defense to the United States Department of Agriculture. In it he expresses his appreciation for the department's cooperation in assisting in the recent farm-labor campaign. The achievement in Illinois, Mr. Insull states, is due to the patriotic spirit of small-town people who responded so generously to the campaign.

Inspection Service for Fruits and Vegetables Extended.

The inspection service for shipments of fruits and vegetables started by the Bureau of Markets last year has been extended to cover 36 terminal markets and Army training camps. The certificates issued by inspectors state the condition of shipments of fruits and vegetables as they arrive at market centers and are used as a basis for settling any claims that may arise between shipper and consignee.

Loading Climax Baskets in Freight Cars.

Wrong methods of loading are responsible for many losses of grapes shipped in climax baskets, according to specialists of the Bureau of Markets who have worked out an improved method of loading these baskets. By placing the last row of baskets at the side of the car at an angle from the other rows it is possible to so fill the space in the cars that damage from shifting of the load is prevented. A poster showing this method of loading climax baskets is being distributed in producing sections where the baskets are used.

Sheep Field Men to Hold Conference.

About 30 sheep field men and sheep specialists of the United States Department of Agriculture will meet in conference at Columbus, Ohio, August 29 to 30, to discuss ways of further encouraging the sheep industry. This is the first conference of its kind to be held by sheep men of the department. The growing demand for wool and mutton brought about by the war is receiving considerable attention by the Animal Husbandry Division, and reports are continually being received which indicate that the sheep industry has made substantial gains since the outbreak of the war.

Poultry Campaign Bears Fruit.

More eggs were received at New York during the first half of this year than during the first six months of any previous year since 1911. From January 1 to July 1, 1918, the receipts of eggs at New York amounted to 3,112,305 cases, an average increase of 80,913 cases over the first six months of the seven preceding years. Taking New York receipts as an indication of the production throughout the United States, this shows that the campaign started last fall by poultry specialists of the United States Department of Agriculture is already bearing fruit. If the advice given in this campaign is widely followed, say the department specialists, there should be a very considerable increase in the stock of laying hens in the country next winter. There should also be a very marked increase in the receipts of fresh eggs at the leading markets in January and February. This, with the better results which it is believed will be secured by this year's experience in keeping poultry, probably will increase production so that the requirements of the country for eggs and poultry in 1919 will be met.

Health Survey Shows Need for More Milk.

As a result of a health survey made in five counties of Wyoming, home demonstration

agents in that State are urging farm women to see that their children drink more milk, and to use more milk products in the diet. The survey was made by the State leader of home demonstration agents of the United States Department of Agriculture and the State agricultural college working with the rural teachers in the counties. It showed that 48 per cent of the absence of children rom school was caused by illness, a large part of which could be attributed to improper food. Besides the campaign for the use of more milk, special food instruction will be given by the agents to meet the needs of the families in which the children are not being given proper diets.

Timothy and Clover Seed.

Receipts by dealers of timothy seed were indicated to be 85,000,000 pounds less for the year ending July 1, 1918 than for the year ending July 1, 1917, according to the Seed Reporting Service of the Bureau of Markets. However, the carry-over on July 1, 1918 amounted to about 12,000,000 pounds more than that of the year before and 59,000,000 pounds more than that of two years ago. This large carry-over, it is thought, will offset the greatly reduced acreage cut for seed this year. Incomplete returns from the War Emergency Seed Survey of July 1, 1918, show exports for the 12 months ending on that date have decreased from 12,767,580 pounds to 8,568,241 pounds. The United States has always been the largest exporter of timothy seed and the falling off in exports, it is stated, may be due to difficulties in securing ocean transportation and to a decreased demand in Europe for seed to produce hay crops.

Incomplete returns from the survey of stocks and receipts indicate that the stock of clover seed in the hands of dealers on July 1, 1918 is less than one-third of the quantity held by them a year ago. The receipts by dealers for the year ending July 1, 1918 were 24,000,000 pounds less than for the previous year.

Vegetable Seed Production Survey.

Total production of vegetable seed with the exception of cabbage, lettuce, salsify, and turnip, will be ample for the needs of the coming year, according to preliminary returns from the seed-production survey of July 1, 1918, and crop reports from important commercial seed growers. In some cases where the condition of crops is not satisfactory increased acreages are expected to bring the total production up to normal, while more than normal production of seed is indicated for some kinds of vegetables. This condition, it is pointed out, does not necessarily mean a large surplus, for it is known that large orders have been placed for certain vegetable seeds by foreign concerns for export to countries in Europe which formerly have been exporters of these seeds to the United States.

Cottage Cheese Days at Markets.

Through the efforts of home demonstration agents, special cottage cheese days have been established at curb markets in several cities in Virginia. The country women make up special lots of cottage cheese for these days and the city women know that they will be able to buy a freshly made product at that time. In Fayetteville, Ark., a grocer advertises a regular market day as Cottage Cheese Day. Farm women who have received instruction from the home demonstration agent provide him with a good product for his customers.

School Kitchens Are Canning Centers.

Home demonstration agents are receiving the heartiest cooperation from school boards in all parts of the country. A large number of school kitchens have been turned into canning centers this summer and the home economics students of the high schools are helping the agents with the canning and drying work. Drying frames have been made by the boys in the manual training classes of some of the schools, and special instruction in both canning and drying has been given to the girls by the home demonstration agent or under her supervision.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces that on September 3, 1918, an open competitive examination for agriculturist in extension work, for men only, will be held. A vacancy in the States Relations Service, Department of Agriculture, Washington, D. C., at $2,000 to $3,500 a year, depending upon the qualifications of the appointee, will be filled from this examination. The duties of the appointees will be to assist in the administration and supervision of county agent work in the Northern and Western States. Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated, on a scale of 100: (1) Education, 25; (2) experience, 45; (3) publications and thesis, 30. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for scientific assistant in weed investigations, for men only, on September 18, 1918. A vacancy in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., at an entrance salary ranging from $1,200 to $1,620 a year, for duty in Washington, D. C., or elsewhere, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

More Sheep on Cut-Over Lands.

The utilization of cut-over lands in Michigan as grazing pasture for sheep is being investigated by the United States Department of Agriculture and F. R. Marshal of the Animal Husbandry Division is now on an inspection trip in the Northern part of the State. Since this work was started last spring a number of farmers have embarked in the sheep business and find cut-over land valuable for grazing sheep. Several companies in this district have been interested in financing farmers in buying sheep.

Outlook Good for Poultry Raisers.

Nine per cent fewer eggs were in hand on July 1, 1918, as compared to July 1, 1917, in the 462 cold-storage plants which recently made reports to the Bureau of Markets. The movement of eggs from storage for consumption purposes began nearly a month earlier this year than usual. This condition, according to poultry specialists of the United States Department of Agriculture, should be a special incentive to every poultry producer to work faithfully for good production in the early winter.

Studies Use of Garbage as Hog Feed.

The utilization of garbage as a possible source of feed for hogs is being studied by the United States Department of Agriculture. Dr. A. Wilson, of the Animal Husbandry Division, recently made an inspection trip in the New England and Atlantic Coast States where he visited garbage plants that were making use of waste material in the manufacture of feed for hogs. Dr. Wilson is now making a similar trip of inspection in the corn-belt States and will go from there to the Southern States where garbage plants in cities and army cantonments will be studied.

Mexicans Learn to Make Cottage Cheese.

Many Mexicans in Texas have attended demonstrations on the making and use of cottage cheese, given by a woman agent in dairying of the United States Department of Agriculture and the State Agricultural College. Since Mexicans ordinarily eat a great deal of meat, these demonstrations have been especially helpful in teaching them the use of cottage cheese as a meat substitute. On the big Galveston Ranch in Jim Wells County, all the Mexican families are now making and using large quantities of cottage cheese.

Corrected Figures on Wool Stocks Held by Dealers and Manufacturers

Wool stocks held by dealers and manufacturers in the United States on June 30, 1918, amounted to about 494,000,000 pounds, grease equivalent, according to the corrected quarterly stock report issued by the Bureau of Markets. Stocks reported on the same date in 1917 were 585,000,000 pounds, grease equivalent. The decreased holdings on June 30, 1918, compared to those of the year before, are said to be due to a slower movement of wool to markets this year than last.

Stocks of wool on June 30, 1918, by classes, in pounds, were: Grease, 338,507,500; scoured, 31,321,597; pulled, 19,910,962; tops, 16,325,117; and noils, 16,912,659.

Manufacturers' Stocks by States

Stocks of all classes of wool held by manufacturers in the leading States, in pounds, were: Massachusetts, 84,746,117; Pennsylvania, 23,269,866; Rhode Island, 18,967,761; New York, 17,297,439; New Jersey, 12,457,363; New Hampshire, 8,893,970; Ohio, 6,417,849; Maine, 5,027,768; Connecticut, 4,788,230; and all other States, 10,750,210.

Stocks of Dealers by Cities

Total stocks of all classes of wool held by dealers in cities, in pounds, were: Boston, 133,855,434; Philadelphia, 22,710,983; Chicago, 20,347,916; Portland, Oreg., 15,453,449; St. Louis, 10,284,894; New York, 7,563,094; San Francisco, 835,108; and all others, 19,310,524.

Out of 1,105 schedules sent out 562 manufacturers and 362 dealers reported stocks of wool on hand, 132 dealers and 45 manufacturers reported no wool held, while schedules from 1 dealer and 3 manufacturers were not received in time to be included in the tabulations.

Spray Facts for Fruit Growers In New Department Bulletin

To give fruit growers a more intimate knowledge of spraying materials, spraying machinery, and the whys and wherefores of spraying so their operations may be more uniformly successful, a handbook on spraying insecticides and important insect pests has been published by the United States Department of Agriculture as Farmers' Bulletin 908. Orchard spraying, it says, is an exceedingly cheap form of insurance for the fruit grower against the group of insect pests and fungous diseases preventable by this treatment. Although it may be expensive, the crop value both as to quantity and quality is so greatly increased thereby that it is comparatively a small investment. The bulletin contains directions for the preparation and use of the more important insecticides necessary in combating the various insect pests of orchard, vineyard, etc., as well as other information of use in preventing or reducing insect losses to these crops. Various types of spraying apparatus, nozzles, etc., are described and illustrated with special reference to their use in orchards and home grounds. A ready reference table for dilutions of sprays is given with a chart showing what sprays may be combined and upon what plants they may be used. The bulletin gives an important list of insects with spraying schedules for their control.

WHAT IS GOOD SEED CORN?

Good seed corn must be—

Well adapted to the seasonal and soil conditions where it is to be planted.

Grown on productive plants of a productive variety.

Well matured and preserved from ripening time to planting time in a manner that will retain its full productivity.

This sort of seed corn can best be secured by gathering the ears from the stalks as early as they mature in the fall, by promptly drying the seed immediately after it has been gathered, and by keeping it constantly dry and safe from rats, mice, and insects.

Quality of Eggs Improved By a Candling Campaign

Federal food inspectors of the Bureau of Chemistry, in keeping a close watch on interstate shipments of eggs, have found a marked improvement in the quality of this season's market eggs, according to the officials in charge of the enforcement of the food and drugs act. The finding of fewer bad eggs in the market is attributed by the food officials to the educational campaign, carried on jointly by the Food Administration and the Department of Agriculture, to induce dealers and shippers to candle the eggs as near the source of production as practicable, thus eliminating at the start most of the eggs likely to go bad before reaching the consumer, and to systematic inspection by Federal and State food inspectors. Many of the eggs eliminated are suitable for food at the time of shipment, but are in such condition that they deteriorate rapidly and become unfit for food by the time they reach consumers in distant markets. Careful candling enables the producer or shipper to divert to local use these eggs that will not stand shipping.

Loss Greatly Reduced

Reports received by the Bureau of Chemistry reveal that in some sections where formerly from 36 to 60 eggs were found bad in each case at the consuming centers, now the loss is only from one to two eggs to each case. It is believed by the food officials that as proper methods of candling become better known and more generally practiced the loss from spoilage of eggs will be so reduced throughout the country as a whole to make an enormous total saving in the food resources of the Nation. Complete instructions as to methods and devices for candling can be obtained from the Bureau of Chemistry Food Research Laboratory, 1833 Chestnut Street, Philadelphia, or 22 Jackson Place, Indianapolis, Ind.

ASSOCIATION COWS MAKE GOOD RECORD

There were last year 472 cow-testing associations in the United States, and monthly records were kept for 216,831 cows, or about 1 per cent of all the dairy cows in this country. The cows in the associations whose records have been tabulated averaged 247 pounds of butterfat, or about 50 per cent more than the average production of all the dairy cows in the United States. If all the dairy cows in the country could be brought up to the average of the cow-testing associations, production would be increased 50 per cent in quantity and the cost of production would be considerably reduced.

RAISE THE BEST HEIFER CALVES

The war has greatly increased the demand for dairy products, and it is also important that they be produced economically. In order that the quantity of dairy products may be large and the production economical, more and better cows are needed. The raising of all the best heifer calves will provide cows enough to permit the culling out of all low producers.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

AUG 26 1918
U. S. Department of Agriculture

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI AUGUST 28, 1918 No. 4

WHEAT YIELDS INCREASED BY USING RIGHT KIND OF SEED

Next Year's Harvest Depends on Varieties Suited to Local Conditions

Pure Stocks Free from Weed Pests and Plant Diseases Constitute the Only Type That Should Be Sown

Many bushels can be added to the 1919 liberty wheat harvest, and farmers can reap added profits from increased yields with no more than the usual labor or expense if the variety of seed sown this fall is pure and is well adapted to the locality, say specialists of the United States Department of Agriculture. The seed should be free from noxious weed seeds and not infested by destructive plant diseases. It should be clean, plump, and heavy. If there is doubt about what variety produces the best yields in a given locality, the grower should consult his county agent, State agricultural college, or write to the United States Department of Agriculture, Washington, D. C.

Use Home-Grown Stocks

Home-grown wheat should be used for seed wherever possible. The best seed to get is that of an adapted variety which has been grown continuously in the locality for some time, provided it is pure. The idea that varieties "run out" if grown long in one section, is only an expression for the fact that they are allowed to become mixed and weedy and disease infected. Changing the kind of wheat grown should be done only for the purpose of getting a proved better variety. It is often desirable to do this, provided it is demonstrated beyond question that the new variety is better for that locality.

So-called "new" varieties, extravagantly advertised at fancy prices, should be disregarded completely. The varieties recommended by the State experiment stations or other authorities for the several districts within a State or region are the ones which should be grown. In Kansas, for example, the Kanred, an improved strain of Crimean wheat, is commonly grown in place of the Turkey and Kharkov. The introduction of these hard red winter wheats into the Columbia Basin of Oregon and Washington, and elsewhere in the Pacific northwest, has increased yield and quality of the wheat produced. Poorer varieties are being displaced rapidly.

See the Seed in the Field

The best way to be sure that the seed wheat is free from mixture with other varieties and also from weeds and diseases is to inspect the growing field. Each farmer should do this in his own fields and neighborhood. When his own variety is not well adapted or otherwise of good quality, he should inspect fields of adapted varieties grown by some of his neighbors and arrange to obtain seed from them after thrashing. In many instances he can arrange to have special care given to this field at thrashing time in order to prevent mixture. Such care is especially desirable this year, when the supply of seed wheat retained on the farms probably is smaller than ever before. If the best seed available is not free from weed seeds, the best possible cleaning should be given it.

Seeding with a drill always is advisable. In general, early seeding gives better results than late seeding. Where there is danger from the Hessian fly, the time of seeding should be in accordance with the best advice given on this subject for each section of the country. A chart showing the wheat-sowing dates to thwart Hessian fly may be obtained from the United States Department of Agriculture at Washington.

LET us ever walk humbly in the presence of splendid and unconquerable France, of grim and uncomplaining Britain, of valiant and suffering Italy; and let us stand uncovered in the presence of Belgium, the bravest of all the sons and daughters of men, who gripped the Beast with her bare hands to give the world a breathing spell to assemble its hosts of defense.—Clarence Ousley.

NEW GAME LAWS BASED ON U. S.-CANADIAN TREATY.

President Wilson Issues Proclamation Putting Them in Force

Provisions Governing the Taking of Migratory and Other Birds During the Coming Fall Hunting Season

Regulations governing the taking of migratory birds, adopted as a result of international action binding on the United States and Canada, were promulgated by the President of the United States on July 31. The new law gives effect to the terms of the treaty which effectually protects such birds in most of the North American continent, and in the main there are only slight changes in the law as it existed before the treaty.

Under its provisions there is no spring open season, and the fall open season is made more uniform throughout the country. Nevertheless, the several States have the right under the terms of the act to make and enforce their own regulations when these are not inconsistent with the Federal rulings, but such State regulations may act only to afford additional protection to migratory birds, and not to extend the open seasons beyoud those just promulgated, nor to authorize methods of taking birds not sanctioned in the Federal act.

Main Features of New Law

The uniform open season, in general, covers the period between September 1 and January 31, with a period not exceeding 3½ months for individual species, though there are slight exceptions to these dates and periods, as the shore-bird season in certain New England and Middle Atlantic States, which opens August 16 and closes November 30. The sale of migratory birds is prohibited except of those propagated under permits issued by the Secretary of Agriculture, and uniform bag limits are set for the entire country. Sportsmen may not ship more

(*Continued on page 8*)

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The American System of Agricultural Education and Research and Its Rôle in Helping to Win the War

By David F. Houston, Secretary of Agriculture

The United States has, in its Federal Department of Agriculture and State (land-grant) colleges of agriculture, a system of agricultural research and education which was established more than 50 years ago and which reaches every part of the country and effectively deals with every phase of agriculture. It is worth noting that the national foundations of these two great agencies for the betterment of agriculture were laid in another period of great national stress.

The act of Congress creating the Federal Department of Agriculture was signed by Abraham Lincoln on May 15, 1862, while the Civil War was in progress. On July 2 of the same year he approved the so-called land-grant, or Morrill, act, giving the proceeds from the sale of certain allotments of the public land to each State and Territory for "the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Legislation for Agricultural Education

The national system of agricultural education and research thus established has been greatly developed by subsequent legislation, notably the acts providing for agricultural experiment stations in each State and for cooperative extension work in agriculture and home economics. Many other important and highly significant laws for the betterment of rural life have been placed on the statute books within the past few years, including especially the cotton-futures act, the United States grain-standards act, the Federal warehouse act, and the Federal aid road act. All these measures are administered by the Department of Agriculture and they are achieving, in marked degree, the purposes contemplated by their framers. The Federal reserve act, the farm-loan act, and the Federal vocational education act also constitute an important part of the legislative program for the improvement of rural conditions and the development of agriculture. Thus the Nation was well prepared along agricultural lines to deal promptly and effectively with the emergency problems that have arisen since the United States entered the war. It is not extravagant to say that this Nation had agencies working for the betterment of rural life and agriculture which, in point of personnel and effectiveness, exceed those of any other three nations in the world combined.

The land-grant colleges and experiment stations are without parallel. They are 67 in number, have a total valuation of endowment, plant, and equipment of $195,000,000; an income of more than $45,000,000, with 5,900 teachers; a resident student body of over 75,000, and a vast number receiving extension instruction. Their great ally, the Department of Agriculture, is unquestionably the greatest practical and scientific agricultural organization in the world. It has a staff of more than 20,000 people, many of them highly trained experts, and a budget of approximately $65,000,000.

Instruction Ranks With World's Best

The graduate and collegiate instruction and the research work inaugurated by these agencies take rank with the best in the world. As the result, a large corps of leaders and specialties, capable of dealing efficiently not only with the vital question of agricultural production, but also with important war problems not directly connected with agriculture, has been trained. Through the educational work of the colleges a great impulse has been given to vocational training in agriculture and through the research work of the Federal Department and the experiment stations a great body of new facts of value to agriculture has been accumulated, which the extension service carries directly to the farm and farm home.

The extension, or demonstration, method of teaching and inducing farm people to adopt improved practices, is a distinctly American educational development. It was first used in a systematic way in 1903 by the late Dr. Seaman A. Knapp in his efforts to teach southern farmers how to meet the menace of the boll weevil. This method of giving practical instruction in agriculture and home economics to persons not attending or resident in colleges by means of demonstration, that is, by doing on the farm or in the home, or better, by having the farmer, or the housewife, or their children do the thing it is desired to teach, has been developed by the United States Department of Agriculture and the State colleges of agriculture during the past 15 years. It was made a permanent and nation-wide system and liberally endowed by the cooperative extension act of May 8, 1914, which provided that all such work should be coordinated and carried on cooperatively by the State colleges of agriculture and the Federal Department of Agriculture.

Organization of Extension Service

The department exercises administrative and general supervisory control of this work through its States Relations Service. It is administered in each State through a director of extension with headquarters at the State college of agriculture, in accordance with plans agreed upon by the Federal Department and the State colleges. The field work is done by (1) men county agents, (2) women county or home demonstration agents, (3) boys' and girls' clubs, and (4) a corps of specialists furnished by the Department and the State colleges. Through these agencies it reaches at first hand and in a very practical way the men, women, and children of each rural community.

The cooperative extension act will ultimately (in 1922–23 and thereafter) provide $4,580,000 annually for this work, to which the States must add $4,100,000 annually in order to share in the benefits of the act. During the fiscal year 1917–18 there was available for extension work from these sources $3,680,000. Funds from other sources increased this amount to $7,600,000. In addition, $4,348,000 of the special appropriation made to the Department of Agriculture last year for the stimulation of agriculture was devoted to the expansion of the extension work as a war-emergency measure.

Agriculture Ready for War

That the Nation entered the war with well organized and highly efficient agencies working for the betterment of agriculture is well illustrated by the part they have played in dealing with food problems during the present emergency. In April, 1917, the food situation of the Nation was not satisfactory. The time for action was short. It was necessary that nothing be omitted to increase the supply of food, feed, live stock, and clothing, and to grow strong in agriculture, while Europe, and especially the central powers, was growing weak. The machinery was ready. The farmers and their organizations were alert. The department and its great allies, the land-grant colleges, immediately proceeded to redirect their activities and to put forth all their energies in the most promising directions. In a conference of the agricultural leaders of the Nation in St. Louis, called just before the United States

entered the war, a program for further organization, legislation, and action with reference to production, conservation, and marketing was drawn up, the principal features of which have been enacted into law without substantial change or have been put into effect. This prompt and effective handling of the situation was made possible by reason of the fact that the American people, generations before, had wisely laid the foundations of many agricultural institutions and had with increasing liberality supported their agricultural agencies.

In due course the Congress enacted the food-control bill, conceived at this conference, now administered by the Food Administration, and the emergency food-production act, administered by the Department of Agriculture. With funds made available by the latter act, the department increased its activities along all essential lines and developed new ones. It and the State colleges cooperating with it quickly took steps to expand the extension work, with a view to placing in each rural county one or more agents. Within a year the number of county and home demonstration agents, club leaders, and specialists in various lines employed in the great extension system was more than doubled, thus putting into effect within a year a program of expansion which under ordinary conditions would have required many years to complete.

How Extension Forces Increased

The number of men county agents has been increased from 1,434 to 2,435 within the year, the women home demonstration agents from 537 to 1,715, and similar increases were made in the personnel of the boys' and girls' club work. To-day there are employed in this great educational system over 6,000 county and home demonstration agents, club leaders, and specialists in various lines, and the extension work is organized in substantially every agriculturally important county in the country. These agents are not only aiding the farmers in agricultural problems but they are also rendering valuable assistance to other branches of the Government, such as the Treasury Department, the Food Administration, and the Red Cross, in the prosecution of their war activities.

The efforts and achievements of the millions of farm men and women of America have been noble and remarkable. The farmers have occupied the first-line trenches of the food army. They and the agencies assisting them, the Federal Department, the State colleges, and also the State departments of agriculture, were ready when a state of war was declared and had been for years. They were charged with the responsibility for maintaining and increasing production. How they have discharged their task the results of last year's production operations and of this year eloquently testify.

Meat Restrictions Released for the Present by the Food Administration

The United States Food Administration issues the following:

The extreme drought in Texas, Oklahoma, and other sections of the Southwest, which also affects Montana and certain areas in adjacent States in the Northwest, is endangering the meat herds in these great cattle producing sections. As an immediate result the present cattle runs are 50 per cent heavier than in the corresponding period of last year. The larger part of this stock is below the most desirable market weights and would normally remain on the ranges until it had attained a larger growth. So far as is practicable these cattle are being moved to sections where conditions of grass, grain, and water are more favorable. The surplus must, however, be handled.

The Food Administration, therefore, is for the present releasing the meat restrictions. This is about one month earlier than was originally contemplated. It is desired, however, to continue the same careful regard for economy in beef and in all essential foods as a measure to safeguard the future.

Present Excessive Supply

There is always a liberal run of the lighter cattle at this season of the year, but the present supply is excessive. Practically all of the heavier and fatter cattle are more needed for export purposes for our own armed forces and those of our allies because, on account of their thickness and fatty covering, they are less subject to deterioration during transfer from cars to ships and freezers when they are not protected by refrigeration.

In rescinding regulations which prohibited public eating places from serving beef more than once a day and in releasing the householders from their voluntary agreement to curtail purchases to 1½ pounds per week, including bone, the Food Administration requests that this freer use of beef be restricted so far as practicable to the cattle which dress under 475 pounds. To achieve this the retail meat markets are asked to specialize in the use of these lighter cattle, and families and patrons of all public eating places are requested to patriotically accept beef of this weight, even though they have heretofore been accustomed to using the heavier beef only.

The desire of the Food Administration at present is not primarily to increase the consumption of beef as a whole, but to induce a preference in favor of the lighter weight cattle, of which we have an abnormal surplus. This will bring about a conservation of the heavier cattle needed for our soldiers and for export to our allies. At the same time it will afford a measure of protection through increased outlet for cattle raisers in the drought afflicted areas.

The owner of a large herd of cows can well afford to own a first-class bull, and the bull association has now made it possible for the owner of a small herd to own a share in a good, well-bred bull.

CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for scenario editor, for both men and women, on September 18, 1918. A vacancy in the office of the Secretary, Department of Agriculture, Washington, D. C., at $1,600 a year, will be filled from this examination. The duties of the appointee will consist of the preparation and editing of educational motion-picture scenarios dealing with agriculture, home economics, and other subjects covered by the work of the Department of Agriculture, the writing of subtitles and descriptions of motion pictures on such subjects, and the preparation and editing of other similarly written educational material.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

STOCKYARD REGULATIONS IN FORCE PENDING RECEIPT OF LICENSES

Persons covered by the President's proclamation of June 18, requiring licenses for stockyards and dealers in live stock at stockyards, will not be held for technical violations of the regulations, unknowingly committed, pending the receipt of their licenses and the general regulations, although the principles of the regulations apply to all, according to a statement from the United States Department of Agriculture. Licenses which were required as of July 25 could not be issued to all applicants before that date, says the department, but are now being issued as rapidly as possible.

Complaints relative to alleged violations of the regulations governing licensees should be in writing and may be submitted to the Bureau of Markets, Washington, D. C., or to any of its branch offices.

A small application of fertilizer at the time of seeding wheat often will return its cost many times over in the following crop. Such applications are especially needed where wheat follows corn.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Women Run Curb Market.

A curb market recently organized by the women of Miami, Fla., has proved so successful that the city council has taken it over as a municipal enterprise. The plan was worked out by the urbau home demonstration agent of the Uuited States Department of Agriculture and the State Agricultural College, together with several of Miami's public-spirited women, in order to give fairer prices to both the housewife aud the producer. A committee cooperates with near-by truckers in arranging for the produce. The truckers are planting every two weeks in order to guarantee the women a constant supply of fresh vegetables. Fruit, eggs, butter, cottage cheese, and poultry are also sold. A fee of 25 cents is paid by all those selling products. This goes into a general fund for advertising the market and keeping the street clean.

Farm Bureaus Grow to Meet War Needs.

County farm bureaus, 725 strong, with a membership of over 300,000, are bringing to the United States Department of Agriculture and the State agricultural colleges the organized help of patriotic American farmers in planniug and executing the agricultural production and conservation program. During the last year, with the help of the department and the colleges, 497 new bureaus were organized to meet the war needs, and the membership increased from 96,000 to its present figure. In the new county farm bureau is found a local agency in which the entire extension movement of the county centers and where the county agent, the home demonstration agent, the leader of boys' and girls' club work, and the farm management demonstrator, work hand in hand with the farmers and their families in all matters relating to the advancement of agricultural, home, and community life.

Uncle Sam Supplies Films.

One motion-picture film is now being supplied every two weeks by the United States Department of Agriculture for release in the Universal Screen Magazine. These films show in an interesting and educational manner some of the activities of the department and of the important lessons which the department is trying to teach. Films that have already been released show work of the pig clubs, road building, forest-fire prevention, poultry management, cattle and sheep grazing on the national forests, types of horses, cooperative berry growing in the Pacific Northwest, the Government's method of tree plantiug on the national forests, how the department regulates logging on the national forests, and the work of the forest ranger.

Boys and Girls Plant Beet Seed for Sirup.

Boys and girls in 18 States have planted 10,414 ounces of sugar-beet seed supplied them by the United States Department of Agriculture for the purpose of making sugar-beet sirup. The seed was secured through the Bureau of Plant Iudustry and distributed by the States Relations Service to 18 State leaders of boys' and girls' club work iu the North and West. Each boy or girl receiving an ounce of the seed is pledged to grow it aud to make the beets iuto sirup. It is estimated that, with average yields, this might result in the home manufacture of more than 40,000 gallons of sirup, which may be used in mauy ways as a sugar substitute in general cooking.

Farmers Raising Own Food Supply.

Farmers are becoming more independeut in regard to food supply than they have ever been since before the Civil War, in the opinion of a field mau of the United States Department of Agriculture, who recently returned from an iuspection trip in New York aud the New England States. Farmers in that territory who have never before raised wheat, barley, and buckwheat are growing small patches of such crops for their own use.

Aids Canada in Farm Survey Wor k.

A representative of the United States Department of Agriculture has recently returned from Cauada, where he assisted in outlining proposed farm survey work. The Ontario Agricultural College has had representatives in this couutry to study our methods of conducting farm surveys, and similar methods are to be used in Canada. A study of the costs in different types of farming is to be made, with a view of determining the best farm practices.

Record Year for Canning Indicated.

Reports from manufacturers of canniug supplies who have conformed to recommendations of the United States Department of Agriculture in the making of equipmeut indicate that the interest iu home canning is increasing rapidly. There is a widespread demand for more equipment that will save labor aud time in canning. It is estimated that there has been during the year a 50 per cent increase in the uumber of firms manufacturing home canning supplies, au average increase of 25 per cent in the quantity of equipment sold, aud an increase of 300 per cent in the demand for rubbers of standard quality. Some of the departmeut's canning instructions have been published by outside parties in 10 different lauguages, and more than 100 business concerns have reprinted the directions for free distribution to their employees and customers.

How Town People Aid Farmers.

How the little town of Delhi, situated in the Catskill Mouutains in New York State, is aiding farmers in the surrounding community in securing much-needed labor, is told by a representative of the United States Departmeut of Agriculture, who has recently returned from an inspection trip in that district. The local commercial club of Delhi has organized some of the business men of the town who are willing to do farm work after 3 o'clock. The farmer who needs help telephones to the club, and at 3 o'clock the volunteer workers climb into automobiles aud report to his farm for a half-day's work. About 35 business men are being placed every day on the farms around Delhi. The local minister has set the example. He spends one day helping each of the farmers in his congregation.

Training Kitchen for War Workers.

The department's demoustration and training kitchen in Washington conducted by the boys' and girls' section of the Office of Extension Work North and West, is a center of important training and demonstration activities. During the last year 73 State, assistant State, county, and local leaders of boys' and girls' club work have been given special training in this kitchen on methods of conducting war-saving demonstrations in canning, drying, aud bread-making, and it is also the center of instruction in other activities of the boys' and girls' clubs, such as garment making, poultry, corn, and potato demonstrations. The

record of the year's work just completed shows that 486 complete demonstrations were given and 27 regular training conferences with leaders were held. The leaders carry this instruction to the thousands of junior Americans enlisted in this branch of extension work.

Millions from Forests in 1917–18.

Receipts from the National Forests in the fiscal year 1918 ending June 30 amounted to more than $3,574,000. Fees from live stock brought in over $1,700,000, and timber sales yielded over $1,500,000. Water-power permits brought in a little less than $100,000. Smaller amounts were received from various forms of land occupancy. Turpentine privileges on the Florida National Forest yielded the Government about $8,000.

Turn Rabbit Pests into Profits.

Fully 200,000,000 wild rabbits are killed in the United States every year according to estimates made by the Biological Survey of the United States Department of Agriculture. Many of them are jack rabbits, the majority of which have not been utilized in the past. If all the rabbits killed were consumed, they would represent between 200,000 and 300,000 tons of valuable food, and if proper measures were taken to insure the collection of skins, these alone would have a value of $20,000,000. The Biological Survey has frequently been called upon to help western farmers in coping with the rabbit pest. In view of the probable economic value of rabbit meat and fur in the coming few years, the energies of the farmers and ranchmen will be directed to the conservation of this important resource. Already a number of establishments for collecting, dressing, canning, and shipping rabbit meat are in operation in western centers. As in Australia the transition of the wild rabbit in this country from its status as a pest to source of profit is assured, it is believed.

White Pine Blister Rust Under Control.

In 68 of the 71 localities where outbreaks of the white-pine blister rust have been located during the past six years the disease has been completely eradicated through the efforts of the United States Department of Agriculture cooperating with State authorities. In the three remaining localities eradication is going on. So far this season the disease has appeared in only one of the localities where it has been previously eradicated. The blister rust has not been found in States south of Pennsylvania and the Ohio River or west of the Mississippi River, except Minnesota, Iowa, and South Dakota. Hundreds of shipments of both pine and currants from infected regions have been made into these States, however, and it is possible that outbreaks may occur. Federal authorities are making a diligent search to locate any such infections and are prepared to stamp the disease out as soon as it appears.

Fighting Army Worms in Florida.

More than 20 specialists of the United States Department of Agriculture are cooperating with State officials of Florida in combating the serious outbreak of the semi-tropical army worm in the castor-bean fields along the eastern and central parts of Florida. About 40,000 acres in Florida were planted in castor beans this year to supply oil to the War Department for use in the operation of airplanes. It is estimated that the army worm has destroyed hundreds of acres and caused injury to thousands of acres of the beans. Through the cooperation of the War Department several tons of arsenate of lead have been shipped to Florida for use in combating the pest. The situation is well in hand, reports state. One brood of worms has about run its course and definite plans have been made to control the next brood which is expected in a week or 10 days.

Potato Harvesters from Towns.

About 1,800 helpers will be needed to assist potato growers in the Hightstown, N. J., district to harvest the 18,000 acres of potatoes that are ready to be dug. This was determined at a conference held recently at Hightstown at which Dr. E. V. Wilcox of the United States Department of Agriculture presented the urgent need of residents of towns and cities to help potato growers. As a result of the meeting town organizations have circulated pledge cards asking for volunteers from factories, offices, and stores to spend a day or the hours after their regular work in the potato fields picking up the potatoes after they have been dug by machines and packing them in barrels. The same organization used to secure this labor will be employed later to secure labor for harvesting corn and doing other emergency farm work.

THERE are many things that women can do on the farm. Women in the north are stacking wheat; women in the South have been chopping cotton. At the same time big, able-bodied men are hanging around hotels and driving pleasure cars. The women of England and France are between the plow handles, and our women, God bless them, will go there too, if need be; but I shall despise American manhood if we drive our women to these hard tasks as long as there is a single able-bodied creature in breeches who isn't in the Army.—Clarence Ousley.

Government to Control Fires.

In California cooperative arrangements have been made with 126 individual owners controlling about 250,000 acres of timberlands, whereby the Forest Service assumes duty of detecting and fighting of all fires that may occur. This protection is obtained at an average cost of 1½ cents per acre paid by the owners.

Guard Milk for Naval Cadets.

The quality of the milk furnished for the use of the future naval officers of the United States Navy at Annapolis is being closely guarded. Representatives of the Dairy Division of the United States Department of Agriculture make monthly visits to the United States Naval Academy dairy at Gambrills, Md., and on each visit the dairy is scored and the bacterial count is taken of a number of samples of milk and recommendations for improvement are made. There are in this dairy about 200 grade Holstein cows.

Number of Bull Associations Grows.

Farmers are taking advantage of the opportunity to use purebred bulls afforded them by membership in a cooperative bull association. Eight is the net increase of cooperative bull associations for the year ended June 30, 1918, and eight others are now in process of organization, according to the Dairy Division of the United States Department of Agriculture. On July 1 this year 43 associations were in operation, as compared to 36 on July 1, 1917, one association in operation last year being disorganized. Fieldmen, county agents, and others working in cooperation with the department have had a part in establishing these associations. There is an average of 5 pure-bred bulls in each organization and an average of 225 dairy cows.

STARS IN FOREST SERVICE FLAG.

There are now 385 stars in the service flag of the Forest Service floating from its office building in Washington. Included in this number are five gold stars for former members who have died in military service. Most of the men are in the Tenth and Twentieth Engineers, the so-called forestry regiments.

On account of the present emergency it is particularly important that good dairy bulls should be utilized to the fullest advantage, for more can be accomplished in increasing milk production and making it more economical in this way than in any other.

Lime Put on Preferred List by the War Priority Board

At the request of the Secretary of Agriculture the War Priority Board has placed agricultural lime in preferred classification in the matter of fuel supply as well as in the matter of transportation. Secretary Houston acted upon the recommendation of the Agricultural Advisory Committee, which was in session in Washington last week. The committee declared that production and distribution of pulverized limestone and burned lime for agricultural purposes should be declared essential in the production of food and other war necessities, both indirectly through the clovers and directly through many staple crops, such as wheat, corn, and cotton.

The action of the War Priority Board should bring relief to farmers. Reasons given by the Agricultural Advisory Committee for urging that lime be placed on the preference list were that the prices of lime and limestone are now very high, that they were advancing before the war on account of the newly created demand on the part of farmers, and that now the high cost of labor and fuel has made further heavy increase. Inability to secure delivery by transportation lines, together with a great advance in the cost of material, is limiting the liming of land to a serious degree, the committee said. The limited coal supply and danger of actual coal shortage was declared to be a further serious handicap to the lime supply.

Text of Recommendation.

The full text of the Advisory Committee's recommendation to the Secretary of Agriculture is as follows:

"We believe that hunger throughout the European countries is a thing to be greatly feared during the coming years, and the eastern half of the United States must do much in saving the situation. In a great part of this area production is hampered by soil acidity, which can be corrected only by plentiful use of lime. Meeting the lime deficiency of these soils should be our first consideration. Experiments running through long terms of years at various experiment stations, and the experience of thousands of practical farmers, indicate clearly that our acid soils will not produce the clovers unless lime is supplied. There has also been full demonstration of the fact, both by experiment station and repeated farm practice, that many staple crops can not profit rightly from applications of fertilizers until the lime requirement has been met. The prices of lime and limestone now are very high. They were advancing before the war on account of the newly created demand on the part of farmers, and now the high cost of labor and fuel has made further heavy increase. Inability to secure delivery by transportation lines, together with the great advance in the cost of material, is limiting the liming of land in a serious degree. A limited coal supply, and danger of actual coal shortage, is a further serious handicap to the lime supply.

"We believe it to be just as important to deliver lime or limestone to the farmers quickly as it is to deliver most other war necessities. We believe that we are justified in asking that the railroads, under the Director General, make a special freight rate less than that now prevailing, and every possible improvement in the transportation of agricultural lime should be made. Manufacturers should be encouraged to put low-priced pulverizers on the market, and these should be delivered to buyers without any undue delay. Manufacturers of lime should be supplied all the fuel that they can properly use in the production of agricultural lime, and their shipments should go forward as promptly as other essentials. There should be assurance that material for new plants will be provided and forwarded promptly, when such plants are necessary for an adequate supply of agricultural lime. If supplies of lime and limestone can not be secured by farmers promptly, and at prices that will encourage their free use, the Government should regulate the whole business for the public good. This extreme course should not be taken until the transportation and fuel factors have been taken care of by the Government and the full energy of the United States Department of Agriculture has been expanded in propaganda to secure the liming of our soils.

Resolutions Passed

"WHEREAS the Advisory Committee of the Department of Agriculture and the Food Administration fully indorses the above statement of the agricultural lime situation; and

"WHEREAS it is our conviction that this statement is backed by the United States Department of Agriculture, by many State experiment stations, and by repeated experience of many practical farmers:

"*Resolved*, That the production and distribution of pulverized limestone and burned lime for agricultural purposes should be declared essential in the production of food and other war necessities, both indirectly through the clovers and directly through many staple crops, such as wheat, corn, and cotton; and

"*Resolved*, That our Government should do everything in its power to further such production and distribution by placing agricultural lime in preferred classification in the matter of fuel supply as well as in transportation."

Subsequently the committee voted thanks to the Secretary of Agriculture for his prompt action in securing the placing of agricultural lime on the preference list of the War Priority Board, and requested that the ruling to that effect be made public, together with the resolution previously adopted by the committee.

BEST SOILS FOR WHEAT.

The Liberty Wheat Harvest in 1919 can be increased by sowing seed this fall in the proper kind of soil. Increase next year's yield by adding bushels to every acre through preparations made now. Big wheat yields are produced on soil which furnished a firm yet friable seed bed over a compact subsoil. The ground should have sufficient natural slope to allow good surface drainage and should be provided with subsoil drainage. The soil should have plenty of vegetable matter and plant food and should not be acid. Loams, silt loams, clay loams, and some of the clay soils are best types for wheat. Sandy soils and many heavy clay soils are not so suitable for wheat growing, the former being too loose in texture to retain moisture and the latter too compact to allow aeration and proper drainage. A silt loam overlying clay is a good combination.

QUARANTINE PLACED ON BAMBOO.

To prevent the introduction into the United States of dangerous plant diseases, including the bamboo smut, the Secretary of Agriculture has placed a quarantine on the importation of bamboo seed, plants, and cuttings. The quarantine becomes effective October 1. The order does not apply to bamboo timber, consisting of matured dried canes, which are imported for fishing rods, furniture making, or other purposes, or to any kind of article manufactured from bamboo, or to bamboo shoots cooked or otherwise preserved. Importations of seeds, plants, and cuttings may be accepted for experimental and scientific purposes by the Department of Agriculture. Shipments in bond for immediate export may be permitted in accordance with the regulations which have already been approved governing such entry.

Fortunately, from the farmers' standpoint under existing conditions greater and more widely distributed acreage of wheat than of any intensively cultivated crop can be grown with a given labor supply.

HEAVY LOSS IN STORED SEED FROM PEA AND BEAN WEEVILS

Should be Harvested Promptly after Maturity and Stored Carefully

Treat by Fumigation, Heat, or Cold Storage to Destroy Insects and Preserve Valuable Food Supply

The serious losses caused by bean and pea weevils—which amounts to millions of dollars annually—is largely preventable, and by putting a stop to it a valuable and much-needed source of the Nation's food supply can be saved. No satisfactory artificial remedies can be applied to kill weevil grubs in beans, peas, or cowpeas growing in the field, but they can be easily and effectively controlled afterwards, if the necessary care is given, by methods descrived in a new publication of the United States Department of Agriculture, by E. A. Back and A. B. Duckett. The crop should be harvested as soon as possible after maturity, according to the bulletin, and the seeds thrashed or shelled and treated by fumigation, heat, or cold storage in order to kill the weevils in them before they can increase in numbers and carry on their destructive work.

Weevils not only cause serious damage to peas, beans, and cowpeas in storage, but also in the field, and are responsible for a curtailment in the acreage planted in these crops. In some sections, particularly the coastal regions of the Middle Atlantic States, this pest has carried on its work of destruction so successfully that growers have become discouraged and have discontinued to produce on a commercial scale these valuable food crops. Badly infested seeds are worthless for planting. In one experiment on record only 50 per cent of infested beans germinated, and of these 30 per cent were so badly injured that they could not develop into normal plants.

Harvest All Seed

In gathering the crop, exercise care, the bulletin urges, to leave no portion of it in the field, as seeds scattered on the ground or left in shattered pods on the dried vines may carry the pest over winter and furnish a supply of weevils the following summer. The crop should be harvested as soon as possible after reaching maturity and the seed thrashed or shelled soon afterwards. Storing in the pod does not confine the weevils. Immediately on placing the seed in storage fumigate with carbon disulphid or carbon tetrachlorid. These chemicals when exposed to the air vaporize into a heavy poisonous gas which immediately kills the weevil. Carbon disulphid is the more generally used; though carbon tetrachlorid has the advantage of not being inflammable. Seed to be fumigated should be placed in an air-tight container, such as a tin can or barrel. The chemicals, used at the rate of from 2 to 4 pounds to each 500 cubic feet of space to be fumigated, should be poured over the top of the seed and fumigation should continue for from 24 to 48 hours. As weevils breed generation after generation in stored seeds, the seeds should be watched to make sure that they do not become reinfested. In such case fumigation should be repeated.

Killing by Heating

When there is only a small quantity of seed the weevil may be killed by heating the seed in the oven for several hours. The oven should not be hotter than 120 to 145 degrees F. Dipping seed in boiling water for one minute is also an effective remedy. Weevils will not feed or cause damage at low temperatures, and if seed can be kept in cold storage at a temperature of 32 to 43 degrees F. no trouble from this pest will result. In the Southern States, where weevils cause such great injury to stored seeds, certain farmers have resorted to mixing their seed cowpeas with dry road dust or air-slaked lime, which prevents weevils from developing to multiply in storage. This method can not be used when the seed is intended for food. Seeds once treated should be stored in rooms free from adult weevils, or placed in tight barrels or sacks made of closely woven material, and should be examined occasionally as a guard against subsequent infestation.

FACES TO THE FRONT.

Upon his return from a recent visit to Texas, Assistant Secretary Clarence Ousley sent this account of an incident to Secretary Houston. It offers additional evidence of a staunch-hearted and resolute Americanism in the rural sections.

"On a recent visit to Texas I stopped at Marshall on my way to College Station to rest on Sunday, July 21, with a friend who is the pastor of the First Baptist Church there. I was not altogether surprised when he insisted that I should say something to his congregation at the morning service; but I was surprised to have an urgent call from a camp meeting 13 miles away, to speak there in the afternoon, and I was very reluctant to go, because I was tired, but I could not refuse a call from a group of farmers in my own State. I asked the messenger who brought the invitation whether it would be proper for me to say anything regarding the agricultural problem, and he assured me that the people regarded the agricultural program as a part of the war program, and that I would be at full liberty to speak about it as I might see fit.

"I reached the meeting just as the congregation had arisen for prayer. The minister prayed with great fervor in the usual way of evangelical petition and the congregation responded with fervent amens coming from every quarter of the tabernacle. There had been several conversions at the morning service and the air was electric with spiritual rapture. After the usual plea for the continuing presence of the Holy Spirit, the minister prayed for our Army and the congregation continued with earnest amens. He asked for victory to our arms and for our righteous cause, and he asked that our boys might return whole in body and mind and soul. The amens came in a great volume of heart-swelling emotion as the mothers and fathers thought of their sons. Then the minister dropped his voice and said with humility but with adamant resolution: 'But, O Lord! if they must fall, let them fall with their faces to the front.' There was a moment of silence in the congregation, and then there came in a deep chorus, with a sob, 'Amen.'"

"When mothers and fathers in remote districts, away from the sound of the fife and drum and the sight of warships, airplanes, and marching parades, can say amen to the courageous death of their sons, we need have no fear that the plain people of the United States will fail in the resolution to sustain our cause to the utmost.

Extravagant Claims for Gourds Advertised as Valuable Beans

Two varieties of edible gourds, long known but little grown in this country, have been widely advertised recently as "butter beans" of rare quality and high productivity. Vague but glowing and extravagant claims are made for them which has led the United States Department of Agriculture to warn farmers and gardeners to be on their guard. Their culinary value is similar to that of summer squash, say department officials, and they are interesting as curiosities, but have very slight practical worth. The name Gigantic New Guinea Butter Bean has been given to the common Cucutza or sweet gourd. It is frequently found in Italian vegetable gardens and is offered in the markets of New Orleans, but is considered of such little value that regular seedsmen rarely give it notice. It has been reported that this so-called new bean has been offered at extravagant prices, for example, 6 of the gourd seeds for 50 cents, or 16 for $1. The Snake or Solomn Island gourd also has been renamed in certain advertisements as Guada bean. This gourd can be grown only in warm climates and is adapted to rather limited regions in the southern part of the United States.

NEW GAME LAWS BASED ON U. S.-CANADIAN TREATY

(*Continued from page 1*)

than two days' bag limit in any calendar week.

At the same time provision is made for the collection of birds for scientific purposes, and under extraordinary conditions Federal permits may be issued to kill migratory birds should they become injurious to agricultural interests.

Provides for Game Farms.

Liberal provisions are included also for the propagation of migratory waterfowl on game farms and preserves, and the sale of birds so bred and reared is authorized as a part of the program for increasing the food supply. This paves the way for building up an industry which has already shown possibilities of marked success. Many species of waterfowl can be profitably raised in captivity, either on land unsuited to farming or in connection with other farm operations.

The department says that many persons have been deterred from engaging in this business because there were no suitable laws governing or fostering the enterprise. It is hoped that this action by the Federal Government will lead to uniform and appropriate State legislation governing game farming. Such legislation is urgent, because no migratory birds, except those reared under permit, can now be sold anywhere in the United States.

Some Wholly Protected.

The new law gives continuous protection to all insectivorous birds, band-tailed pigeons, cranes, wood ducks, and eider ducks, swans, curlew, upland plover, and all shore birds, except the black-bellied and golden plovers, Wilson snipe or jack sniper, wood cock, and the greater and lesser yellowlegs, and to certain nongame birds, such as auks, gulls, grebes, guillemots, herons, loons, puffins, terns, and the like.

No night hunting is allowed, the killing or capturing of migratory birds between sunset and a half hour before sunrise being prohibited.

The Open Season.

The open seasons under the new regulations are as follows:

The open seasons for waterfowl (except wood duck, eider ducks, and swans), coot, gallinules, and Wilson snipe or jacksnipe are as follows:

In Maine, New Hampshire, Vermont, Massachusetts, New York (except Long Island), Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, Michigan, Wisconsin, Illinois, Minnesota, Iowa, Missouri-North Dakota, South Dakota, Nebraska, Kansas, Colorado, Wyoming, Montana, Idaho, Nevada, and that portion of Oregon and Washington lying east of the summit of the Cascade Mountains, the open season is from September 16 to December 31.

In Rhode Island, Connecticut, Utah, and that portion of Oregon and Washington lying west of the summit of the Cascade Mountains the open season is from October 1 to January 15.

In that portion of New York known as Long Island, and in New Jersey, Delaware, Oklahoma, Texas, New Mexico, Arizona, and California the open season is from October 16 to January 31.

In Maryland, the District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, and Louisiana, the open season is from November 1 to January 31, and in Alaska the open season is from September 1 to December 15.

The open season for sora and other rails (except coot and gallinules) is from September 1 to November 30, except as follows:

In Louisiana the open season is from November 1 to January 31.

Season for Plovers.

The open seasons for black-bellied and golden plovers and greater and lesser yellowlegs are as follows:

In Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, and Virginia the open seasons are from August 16 to November 30;

In the District of Columbia, North Carolina, South Carolina, Tennessee, Arkansas, Oklahoma, New Mexico, Arizona, California, and Alaska the open season is from September 1 to December 15;

In Vermont, Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas, Colorado, Wyoming, Montana, Idaho, Nevada, and that portion of Oregon and Washington lying east of the summit of the Cascade Mountains the open season is from September 16 to December 31;

In Utah and in that portion of Oregon and Washington lying west of the summit of the Cascade Mountains the open season is from October 1 to January 15; and

In Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas the open season is from November 1 to January 31.

Woodcock Open Season.

The open seasons for woodcock are as follows:

In Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, West Virginia, Kentucky, Indiana, Michigan, Wisconsin, Illinois, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, and Kansas the open season is from October 1 to November 30; and

In Delaware, Maryland, the District of Columbia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, and Oklahoma the open season is from November 1 to December 31.

The open seasons for mourning and white-winged doves are as follows:

In Delaware, Maryland, Virginia, Tennessee, Kentucky, Illinois, Missouri, Oklahoma, Texas, New Mexico, Colorado, Arizona, California, Nevada, Idaho, and Oregon the open season is from September 1 to December 15; and

In North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Louisiana the open season is from September 16 to December 31.

Daily Bag Limits.

The daily bag limits for one person are as follows:

Ducks (except wood duck and eider ducks) 25 in the aggregate of all kinds; geese, 8 in the aggregate of all kinds; brant, 8; rails, coot, and gallinules, 25 in the aggregate of all kinds; black-bellied and golden plovers and greater and lesser yellowlegs, 15 in the aggregate of all kinds; Wilson snipe or jacksnipe, 25; woodcock, 6; doves (mourning and white-winged), 25 in the aggregate of both kinds.

Sale of Game.

Under section 2 of the migratory bird treaty act it is unlawful to hunt, take, capture, kill, possess, sell, purchase, ship, or transport by any means whatever, or export at any time, any migratory bird included in the terms of the treaty, except as permitted by regulation of the Secretary of Agriculture. In the regulations the Secretary has not given permission for the sale of any migratory game birds except as propagated on game farms and for scientific purposes. As a result, the sale of wild migratory game birds is forbidden throughout the United States. It will be especially worth noting in connection with the law and regulations that the regulations do not repeat the prohibitions contained in the law, but note the exceptions in the way of permissions authorized by the Secretary of Agriculture. Copies of the law and regulations may be obtained of the Secretary of Agriculture.

THE county agent, the home-demonstration agent, the local club leader, and other local extension workers are the necessary consequences in any county which attempts to analyze and solve its problems of farm, home, and community.

Before the war the United States received dairy products from no fewer than 24 foreign countries; now these supplies have been largely stopped and it has become necessary not only to replace them at home but also to export large quantities.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI SEPTEMBER 4, 1918 No. 5

SERIOUS WHEAT DISEASE DISCOVERED IN THE EAST

European Pest Makes Its Appearance in Virginia Fields

Growers Urged to be on Lookout for Nematode Malady and to Practice Measures to Prevent its Spread

A serious disease of wheat, long known in Europe, has recently been found in certain parts of the United States, particularly Virginia, according to the United States Department of Agriculture. In some Virginia fields losses have been as high as 40 per cent of the crop. The department urges growers to be on the lookout for its appearance and put into practice measures that will prevent it from spreading. Such measures are described in a circular just issued by the department.

The disease, caused by a small nematode or eelworm, usually affects the wheat heads, although it may occur on all parts of the plant above ground. Affected heads stay green and ripen late and are smaller than those not affected. The shaff usually opens at a wide angle. In place of grains of wheat the affected heads contain dark, hard galls somewhat shorter and thicker than wheat grains. Control measures consist of planting only disease-free seed, practicing crop rotations, and preventing the spread of the nematodes from one field to another by means of infected soil which may cling to the feet of men or animals or to farm implements.

The disease was first reported to occur to a slight extent in 1909 in California, New York, West Virginia, and Georgia. After that nothing was known of the trouble until 1917, when it was located in one place in Virginia. Since then it has been found in many points in the same State and in one locality in California. Recent examinations of this year's crop shows as much as 40 per cent loss in certain fields in Virginia. Quite likely the trouble occurs even to a considerable extent in other States, and has been merely overlooked or mistaken for bunt, cockle seed, or bin-burnt wheat.

In addition to preventing the spread of this disease the Department of Agriculture urges that steps be taken to stamp it out in localities already infected, and to stop its further introduction from foreign countries. Plant only clean, sound seed from fields in which the disease does not occur. If this can not be done the galls may be separated from the wheat kernels by pouring the seed slowly into a pail of water and at the same time stirring vigorously. The galls will rise to the surface and can be skinned off. However, if left in the water more than 10 or 15 minutes, they may become water-soaked and sink. Galls may also be separated from sound grain by putting the seed in water which has been heated to 54 or 56 degrees C. for 10 to 12 minutes, a treatment which is also effective against smut.

Fields in which the disease has appeared should not be planted in wheat for 2 or 3 years. Any crop may be used in the rotation, since only wheat is known to be seriously attacked.

Sanitation is also recommended as a means of preventing the spread of the disease. Soil from infected fields should not be carried to uninfected areas either by the flow of surface water or by clinging to the feet of man, or animals, or to farm implements. A deep plowing under of stubble just after harvest lessens the spread of the disease either to near-by fields or within the same field.

AMERICAN AGRICULTURAL MISSION ARRIVES IN FRANCE

A cablegram received August 24 by the Bureau of Plant Industry of the United States Department of Agriculture announced the safe arrival in Paris of a party of agricultural experts of the bureau. They are en route to Algeria, Tunis, and Morocco to investigate and advise on the possibilities of increasing the agricultural output of those French colonies. The visit is to be made at the request of the French High Commission now in the United States. The party is composed of E. C. Chilcott, in charge of the dry farming investigations of the bureau; C. S. Scofield, in charge of the bureau's work in development of irrigation agriculture; and T. H. Kearney, in charge of important work with alkali and drought-resistant crops.

PROPER STORAGE WILL SAVE THE SWEET POTATO CROP

Maturity, Careful Handling, and Curing Important in Conservation

It is Good Economy to Build a Substantial Place for Keeping Product—Chances of Loss Are Greatly Reduced

The proper storage of sweet potatoes is one of the most important food-conservation measures that can be put into effect in the Southern States, according to United States Department of Agriculture officials. No perishable product produced in the South is of as great importance as the sweet potato and none, as a rule, is so poorly handled. To keep this crop in good condition the potatoes must be well matured before digging, carefully handled, well dried, or cured after being put in the storage house, and kept at uniform temperature after they are cured. The only safe and practical method of storing sweet potatoes is in a well-built, up-to-date storage house.

Suggestions on storing sweet potatoes, and detailed information on how to construct a suitable storage house are contained in Farmers' Bulletin 970, recently published by the United States Department of Agriculture.

Making Sure of Ripeness

The grower can judge when his sweet potatoes are ripe by breaking or cutting one of them and leaving it exposed to the air for a few minutes. The cut or broken surface dries if it is mature, but the surface remains moist if it is not ready to be dug. However, in regions where early frosts occur the potatoes should be dug about the time the first hard frost is expected, regardless of their stage of maturity.

The second essential, careful handling, should be observed in digging, gathering, hauling, and unloading. Sweet potatoes should be sorted in the field and gathered in padded baskets or boxes to prevent bruising or breaking the skin. The baskets or boxes should be loaded on the wagon, hauled to

the storage house, and the potatoes carefully placed in the bins. When they are to be hauled very far, a wagon with bolster springs should be used. Sweet potatoes should never be thrown from one row to another, loaded loosely into a wagon body, or hauled in bags, because anyone of these practices will bruise them and afford an opportunity for disease to enter.

Ventilation Essential

The third and fourth essentials, thorough drying and a uniform temperature, may be secured in a storage house where artificial heat can be supplied. The house must be constructed in such a way that it can be thoroughly ventilated when necessary, and yet be made nearly air-tight in cold weather.

It is good economy to build a substantial sweet-potato storage house, because it will last longer and require less attention than a cheap, poorly constructed one. It would be possible to keep the potatoes in a cheaper and less carefully constructed house, but the attention required and the additional fuel used would soon exceed the cost of the extra labor and material necessary for building the better one. The chances of loss are much greater in a poorly-built than in a well-built house.

War Finance Corporation Announces Plans for Direct Loans to Stockmen

Secretary McAdoo announces that the War Finance Corporation has perfected its plans for making direct loans under the provisions of section 9 of the war finance corporation act to individuals, firms, and corporations whose principal business is the raising of live stock, including, cattle, sheep, goats, and hogs.

The corporation has decided to create, under authority of the act, two agencies, one at Kansas City and one at Dallas. These agencies will be known as the Cattle Loan Agencies of the War Finance Corporation, and their business will be confined entirely to the consideration of applications for direct loans to cattlemen. All applications from banks for advances for crop-moving purposes and other purposes will be received as heretofore by the Federal reserve banks acting as fiscal agents for the corporation.

Conducted by Committee

Each of the two cattle loan agencies will be conducted by a cattle loan committee, one with headquarters at Kansas City and the other at Dallas, of which committees the Federal reserve agent and the governor of the respective Federal reserve banks will be members. Five additional members of each committee will be appointed by the War Finance Corporation. The cattle loan committees will in turn create such local organizations as may be necessary to carry the plan into execution. All applications for direct cattle loans must be made through the cattle loan agencies, which will refer such applications as they approve to the War Finance Corporation for final approval.

Only two cattle loan agencies will be established, and applicants residing in the Federal reserve districts of San Francisco, Minneapolis, St. Louis, and Kansas City will send their applications to the cattle loan committee of Kansas City; and those residing in the Federal reserve districts of Dallas, Atlanta, and Richmond will send their applications to the cattle loan committee of Dallas. Cattlemen residing in other districts, who may have occasion to make application, will communicate direct with the War Finance Corporation at Washington.

Leave Washington Wednesday

In order to expedite the formation of the cattle loan committees and other details of organization, Directors Clifford M. Leonard and Angus W. McLean, and Counsel S. W. Fordyce, of the War Finance Corporation, will leave Washington Wednesday evening for Kansas City, where they will consult and confer with representative bankers and cattlemen in the two districts concerned.

No Tractor Report Suppressed Asserts Official of Department

Contrary to a statement published in a recent issue of the Farm Machinery-Farm Power of St. Louis, the United States Department of Agriculture has not "suppressed" a report on the Fordson tractor. Early last November, Assistant Secretary Vrooman requested Mr. A. P. Yerkes to gather for his confidential information, for a purpose entirely apart from any contemplation of rendering a departmental verdict, facts available concerning the status of the Fordson tractor at that time. As Secretary Vrooman says, "The Yerkes memorandum is not in any sense an official utterance of the Department of Agriculture."

Following is a copy of the letter from Assistant Secretary Vrooman:

The Editor,
Farm Machinery-Farm Power,
St. Louis, Mo.

Dear Sir: In the issues of your publication of July 15 and August 1, considerable space is devoted to a "report" on the Fordson tractor made to me by Mr. A. P. Yerkes of the Office of Farm Management, a copy of which was surreptitiously obtained by some one and furnished to you.

Leaving aside the question of journalistic ethics involved in your use of matter thus obtained and having no official sanction, I desire to call your attention to the inaccuracy of your treatment of it.

The headline over the most recent article is: "Prof. Yerkes's report on Fordson tractor suppressed." That is erroneous. The Yerkes report was not suppressed. It was never meant for public use. It was prepared at my request and submitted as confidential information, and it served the exact purpose for which it was prepared.

The inaccuracy of the headline is typical of the inaccuracy of the whole article.

Mr. Yerkes's investigations were made in the early days of November, 1917—more than nine months ago. Any opinion upon the Fordson tractor as it existed at that time is not an opinion upon the Fordson tractor as it exists to-day or as it existed when your articles were published.

The Yerkes memorandum is not in any sense an official utterance of the Department of Agriculture. It is the expression of the opinion of one man, held nine months ago, as to the status of a machine in process of change. Had there been any reason for the Department of Agriculture to express an official opinion on the Fordson tractor it would not have based that opinion upon the investigations of a single man in one bureau. There might be found in the Department of Agriculture experts who would make unfavorable reports on some features of any tractor manufactured.

An official opinion by the Department of Agriculture in a matter such as this is a digest of the investigations of a number of men made from as many angles. The Department of Agriculture has never pronounced, nor has it had occasion to pronounce, any official opinion, favorable or unfavorable, upon the Fordson tractor any more than it has upon other makes of tractor concerning which it has had, from time to time, reports from its experts.

Very sincerely yours,
Carl Vrooman,
Assistant Secretary.

YOU HAVE GARDEN SEED NOW—SAVE IT

Some of the garden seed now growing abundant in your garden will be needed next year when planting time comes. Better save a supply while you can. It is not hard to save seed and quite frequently the home-grown supply is better than any that can be bought from the seedman. Home-grown seeds are suited to local environment, and the vigor and productiveness of the plants from which they are selected can be taken into consideration—which is an important point in selecting home-grown seed. Wait until the seed matures, then dry it thoroughly immediately after it has been harvested, put it in packages well labeled, and store in a dry place where it can not be destroyed by insects, rats, or mice.

GIVE BEES GOOD HOUSES AND THEY'LL PRODUCE MORE HONEY

Movable-Frame Hives and Wise Handling Methods Recommended

New Department Bulletin Tells How to Transfer Colonies with Little Loss and Add to Nation's Supply of Sweets

Hundreds of thousands of bee colonies, representing about one-third of the number kept in the United States, are housed in log "guns" and in box hives, and produce for their owners an insignificant amount of honey compared with what they might do if they were transferred to movable-frame hives and handled by improved methods.

If all the beekeepers now using box hives would adopt the modern type of movable-frame hive they would not only secure more profit from their bees for themselves, but would add many millions of pounds of honey to the Nation's supply, according to Farmers' Bulletin 961, "Transferring Bees to Modern Hives," by E. L. Sechrist, recently published by the United States Department of Agriculture. The bulletin describes a number of the best methods of transferring from old to new hives.

Care In Winter Needed

Much of the honey produced by colonies in box hives is wasted by crude methods of securing the crop, the bulletin states, and these colonies are reduced in earning value by uncontrolled swarming, and by the annual loss of bees which die in winter because of lack of protection and sufficient food stores.

While bees may be transferred at any season when they are active, the bulletin states that the best time is during the season of fruit-bloom when the combs contain little honey, and when the bees will gather nectar rather than rob honey from a hive which is being transferred. Another good time for transferring is immediately after the first swarm of the year, when the number of bees in the hive is greatly reduced, and when there is no danger of losing or injuring the queen. She goes with the swarm leaving queen cells in the hive. Transferring when robber bees are active requires that the work be done inside a screened or bee-tight building.

How To Move Colonies

The bulletin describes five methods of transferring. One consists in cutting the combs from the box hive and placing them in a new movable-frame hive, and transferring the bees by shaking or drumming them from the old hive. Another way is to drum the bees out and move them to new hives which have been previously provided with full sheets of comb foundation. The third method consists in catching the swarm as it issues from the old hive and immediately putting it in the new hive placed on the old stand. In the fourth method the new hive containing comb foundation is placed on the old one, and an opening for the bees provided between the two.

The fifth method requires a little special equipment, and takes advantage of the fact that in some localities the bees are almost sure to swarm. Place the new hive near the old one and provide it with a queen-trap near the entrance in such a way that when the bees swarm the queen will be caught, and the worker bees automatically will enter the new hive.

These methods are described in detail in the new bulletin which will be sent free, so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C.

Kansas Tractor Girls Would Help in Manner of French and English Women

The following telegram to the Secretary of Agriculture was received recently from Salina, Kans.:

"Beg to inform you big organization perfected here, which will have membership of several thousand, known as Kansas Tractor Girls; provide tractioneers for farmers of country in helping to increase production of Nation's food supply. What brave women of France and England can do we can do. Training already begun, arrangements being made for schools of instruction throughout State. We need your counsel. Please answer.

"MISS FANNIE FITZPATRICK,
"*President.*
"MISS HELEN LITOWITCH,
"*Secretary.*"

In reply, the following letter to Miss Fitzpatrick was sent by Clarence Ousley, Assistant Secretary of Agriculture:

"In the absence of Secretary Houston I have your telegram of August 14 concerning the Kansas Tractor Girls. I thank you for calling my attention to the organization, and I congratulate you and those associated with you in the undertaking.

"The field in which these ladies desire to enter service is, of course, a difficult one, but I have the impression that many of them can qualify for effective activity. It occurs to me that there is no better place than the State of Kansas for making a demonstration of what women can do in the operation of farm tracters. I suggest that you get in touch with Director E. C. Johnson, Agricultural Extension Service, Kansas State Agricultural College, Manhattan, who is in immediate charge of the extension work of the Department and the collego in your State. I suggest also that you get into communication with Mr. E. E. Frizell, Farm Labor Specialist for Kansas, whose headquarters are at Manhattan, and who will probably be in a position to give you information as to the opportunities for women to obtain employment as operators of tractors.

"I shall be glad to be informed of progress from time to time, and trust that the undertaking will prove successful."

DON'T LET MILK SPOIL

In this time of need for food every effort should be made to prevent milk from spoiling. Cows should be kept clean and should be milked in clean surroundings into a small-top or covered pail. All utensils which come into contact with the milk should be thoroughly sterilized with steam for at least five minutes, and milk should be cooled promptly at 50° F. or less and maintained at that temperature. Whenever these conditions are met, little milk will be wasted. In this time of terrible destruction of human life it is particularly necessary that milk be produced under such conditions as to insure a safe food for babies. This must be done by a decreasing number of men trained to do it. A great task and a great opportunity for dairymen are involved.

BETTER BREEDING HELPS

In dairying large production and profit go hand in hand. Breeding furnishes the most economical way to obtain large-producing cows. The pure-bred bull, with generations of high-producing ancestors back of him, must be used for breeding, and only the best heifers from the best cows should be chosen to be the dams of the next generation.

Changing the kind of wheat grown should be done only for the purpose of getting a proved better variety. It is often desirable to do this, provided it is proved beyond question that the new variety is better for that locality. So-called "new" varieties, extravagantly advertised at fancy prices, should be disregarded completely.

Loans to Drought-Hit Farmers Described in Treasury and Agriculture Circular

A circular issued jointly by the Treasury Department and the Department of Agriculture defines the procedure relative to granting seed grain loans to farmers in drought-stricken areas out of the appropriation for the national security and defense provided for under the act of Congress approved July 1, 1918, and placed at the disposal of said departments by the President of the United States under date of July 26, 1918, and from such other funds as may be appropriated or made available to said departments from time to time for the same purpose. The procedure is as follows:

1. The Federal land banks, upon being designated as financial agents of the United States, for that purpose, are authorized to make, and collect when due, seed grain loans out of the funds above described, pursuant to these regulations. Their proceedings will be under the supervision of the Federal Farm Loan Board, and said board is autherized to instruct said banks in all matters in connection with said loans subject to these regulations.

2. The Federal land banks, designated as stated above, may in turn designate local banks, or other agencies, to represent them in the taking of applications, the delivery of the certificates of approval, and the receipt, transmission, and recordation of documents. Neither the Federal land banks nor any agency acting under them shall be entitled to compensation for services rendered under these regulations.

3. Seed grain loans may be made to farmers in areas determined by the Department of Agriculture to have suffered two successive crop failures from severe drought or winter killing, and may be made to such individuals as may be found by the Department of Agriculture to have acreage fit for planting, and who, by reason of such crop failures, have exhausted their resources and are without commercial basis of credit. No loan will be made to any farmer who has unencumbered real or personal property sufficient to secure a loan of $300.

Must Use Approved Methods

4. No seed grain loan will be made to any applicant in excess of $300, nor in an amount greater than $3 per acre. Applicants must agree to use seed and methods approved by the Department of Agriculture.

5. Applications for seed grain loans shall be made on the official form of application, and shall be verified by the applicant under oath. The application shall describe the particular acreage to be planted, not in excess of 100 acres. Such applications will be investigated by the Department of Agriculture through such agencies as it may determine, and the approval or disapproval of the application will be certified by its authorized representatives to the Federal land bank of the district upon the forms provided for that purpose on the official application blank. Approval may be for a less acreage than that applied for. The Federal land bank of the district will then certify its approval or disapproval upon the form contained on the application blank and, if it approve, it will issue the applicant its certificate of approval.

6. The amount approved for loan pursuant to these regulations will be paid by the proper Federal land bank to the applicant, or on his written order, upon receipt by such Federal land bank of the following documents:

(*a*) Certificate of planting signed by an authorized representative of the Department of Agriculture, that a number of acres sufficient under these regulations to warrant a loan in the approved amount, have been properly planted with proper seed. The names and signatures of such authorized representatives will be filed with the several Federal land banks by the Department of Agriculture.

(*b*) Promissory note, duly executed by the applicant, for the amount of the loan, payable to the proper Federal land bank as financial agent of the United States, on October 1, 1919, in the Wichita and Houston districts, and on November 1, 1919, in the St. Paul and Spokane districts, as the case may be, with interest at the rate of 6 per cent per annum.

Guaranty Fund Provided For

(*c*) Guaranty fund agreement duly executed and acknowledged by the applicant, providing among other things, that if the crop mortgaged as hereinafter provided, amounts to an average yield of 7 bushels per acre or more, the applicant will contribute to a guaranty fund, at maturity of the above-mentioned note, 15 cents per acre mortgaged (not exceeding 100 acres) for each bushel per acre by which the average yield exceeds 6 bushels per acre, provided that the total of such contribution shall not exceed 75 cents per acre.

(*d*) Chattel mortgage upon the crop planted on the land described in the certificate of planting, in favor of the proper Federal land bank as financial agent of the United States, duly executed by the applicant in such manner as to entitle it to recordation, and securing payment of the above-mentioned note and the due performance of the obligations of the applicant under such guaranty fund agreement, according to the terms thereof, and containing a provision authorizing such Federal land bank, in the event that the applicant fails at the proper time to harvest or thrash the crop mortgaged, to enter upon the premises and harvest or thrash the same, as the case may be, and to sell the crop and to satisfy the lien of said mortgage and expenses incurred thereunder from the proceeds of the crop. Such chattel mortgage will be prepared under the direction of the law department of the Federal land bank of the district, and shall be recorded in the proper office under the State laws applicable. In case such laws require that the original mortgage shall remain in the office in which the same shall be filed, the Federal land bank may make the loan without requiring that the original be lodged with it, provided that it shall receive in lieu thereof such certificate of the recording officer as shall be sufficient in the opinion of its law department to assure the bank that the original has been duly executed, delivered, and recorded in proper form.

7. Actual expenses of the several Federal land banks when shown by sworn vouchers to have been necessarily incurred for stationery, telegraphing, printing, or postage, will be allowed and paid, upon approval of the Federal Farm Loan Board, out of the fund for farmers' seed grain loans hereinabove referred to. Agencies of the Federal land banks appointed under these regulations shall not be entitled to incur any expense chargeable against the United States or its financial agents.

To Tide Over Time of Stress

8. The primary object of farmers' seed grain loans is not to stimulate the planting of an increased acreage of grain in the drought areas, or even necessarily to secure the planting of a normal acreage, but rather to assist in tiding the farmers over the period of the stress, to enable them to remain on their farms to plant such an acreage as may be determined to be wise under all the conditions, with a view to increase the food supply of the Nation and to add to the national security and defense. It is distinctly not intended to be used to stimulate the planting of wheat or any other grain where such planting is not wise from an agricultural point of view and where other activities are safer.

9. The right is reserved to make further supplemental or amendatory regulations relative to farmers' seed grain loans from time to time, or withdraw these regulations at any time.

L. S. Rowe,
Acting Secretary of the Treasury,
Clarence Ousley,
Acting Secretary of Agriculture.

Further information on this subject may be obtained by addressing Prof. G. I. Christie, representing the Department of Agriculture in the Northwest in connection with making loans to farmers, at Great Falls, Mont.; or L. M. Estabrook, at Wichita Kans., representing the department for this purpose in the Central and Southwest region.

How Farm Labor Shortage Is Now Being Met in the South

Scores of ways by which harvest help for southern farmers already has been provided or assured were told at the United States Department of Agriculture's conference of State farm help specialists for the Southern States, held recently in Birmingham, Ala. Some of these ways are given here with the probability that they will be found valuable in communities other than those in which they are being used.

Alabama

County farm help bureaus organized in counties where principal cities are located; membership usually includes county demonstration agent, county food administrator, chairman of county council of defense, a leading farmer, and a business man. Through the State Council of Defense, 5,000 boys are being mobilized over the State to aid in the harvest. Definite plans made for using city men with farm experience through the aid of civic associations and other organizations, with efforts for the entire release to men from nonessential occupations. Women being more generally employed in positions heretofore held by men, such as those of elevator operators, clerks, and waiters. Cities adopting effective vagrancy laws.

Georgia

White women organizing to pick cotton, and have packed a large part of the peach crop. Antiloafing laws forcing able-bodied idlers into work. Cities and towns expected to furnish from 75,000 to 100,000 emergency farm hands this fall. Farmers have speeded up their work and have directed it more intelligently this year than ever before.

Kentucky

Idlers being forced through prosecution and public sentiment to take up productive work. Prejudice of farmers against use of boys being overcome; older high-school students giving effective service. City men in business and industries being enlisted for emergency farm work, and proving their ability. Ways of increasing the efficiency of farm labor being worked out and brought to the attention of farmers.

Louisiana

County councils of defense are having ordinances passed to close poolrooms, and are using war emergency service registration cards for men of from 18 to 50 years. Tractors running in two shifts and 24 hours a day. Negro women found to be capable of doing men's work in fields.

North Carolina

Many poolrooms closed for the period of the war. Railway industrial agents helping civic and governmental agencies to man the farms. Farmers speeding up by using larger implements. Diversification of crops allows one section to draw harvest labor from others.

Oklahoma

Mines slackened operations, and oil operators released every man who could be spared during the wheat harvest season. Cities have refused licenses to resorts of the idle. Farmers cooperated to buy tractors.

Tennessee

Farmers have worked more days, longer hours, and on Sundays, and have come out of retirement to go in the fields. Chores turned over to women and children. One hundred women reported plowing in one county. Men living in small towns and owning farms have worked their land. Men teachers and high-school boys spending vacations in farm work. Courts adjourning and sawmills stopping work during the crop season. Better machinery and more horses being used, while tractors work by night as well as day.

Texas

Banks have been asked to finance farmers in bringing in laborers from Mexico, money allotted for this work by the governor; 10,000 men from this source had been obtained in mid-July.

West Virginia

Banks, factories, and stores have released employees for short-time farm work. Farm business better organized, farmers are working longer hours and harder, and helping each other more, increased numbers of women are in the fields, idleness is being discouraged, and boys are doing more work.

Some of these methods of meeting the labor shortage are being used in all States, some in one or a few. From this list, Department of Agriculture officials believe, every person or organization interested in helping to solve the farm-labor problem can find a field for effective effort.

HARVEST RICE EARLY

Rice growers should make every effort this year to harvest their crop early and store it safely. This is being urged by the United States Department of Agriculture as an important measure to save this valuable food crop from migratory ducks and other birds. Last year rice growers in Arkansas, Louisiana, and Texas delayed harvesting for various reasons, and before they realized it great flocks of wild ducks and blackbirds, which had returned to the Sunny South to spend the winter, were feasting in their fields. From November 20 to December 10 of last year these birds wrought considerable havoc in the rice area of Arkansas, and to a lesser extent in Louisiana, and Texas. In one neighborhood in Arkansas $40,000 worth of rice was destroyed. It probably will be possible this season to harvest all of the rice in this region before November 15, and thus prevent most of the damage and loss from migratory birds such as was experienced last year.

Scotland Organizes Community Rat Hunts

The canny Scots of West Perthshire district are living up to their reputation. They have organized in an active campaign to exterminate rats and save the food and property which they waste. They have demonstrated that it is cheaper to kill than to feed rats. According to a report from the American consul at Dundee, which has just been received by the United States Department of Agriculture, a campaign to exterminate rats in the district mentioned, for which $1,479.41 was appropriated, resulted last year in the killing of 100,000 rats. The board of agriculture appropriated $486.65 for the campaign. It is said that one rat in the course of 12 months caused damage estimated at $2.43, and as there were approximately two rats to the acre, the amount of damage done was equivalent to the average amount of rent paid by the tenants of West Perthshire. The campaign has been so successful and the people so pleased with the results that community cooperation to exterminate rats is to be continued another year, according to the report.

Let Us Do Likewise

American farmers, who have long suffered losses from these food raiders, should follow the example set by this district and organize community campaigns to get rid of rats. In many sections of this country where similar campaigns have been conducted results always have been gratifying. Methods of destroying rats are described in Farmers' Bulletin 896, copies of which can be obtained on application to the United States Department of Agriculture. In addition to telling how community campaigns can be conducted, this publication tells how to get rid of rats by making buildings rat proof, by using traps, poison, fumigating burrows, and encouraging natural enemies.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation and Harvesting During the Next Few Weeks

NORTH AND WEST

The Office of Extension Work in the North and West, United States Department of Agriculture, reports that the matters mentioned below are receiving the special attention of extension workers and farmers in large portions of the North and West. The extension representatives of the department and the several colleges of agriculture are doing most of their work in close association with the farm bureaus which are now well organized in a large majority of the agricultural counties of these States.

FALL PLOWING FOR SPRING WHEAT

Farmers are well aware of the Government plans which call for a large increase in the wheat area for the next harvest. Already a large percentage of the fall-wheat area is ready and farmers are sowing wheat. In the spring-wheat areas likewise, the campaign for spring wheat is now on. For a number of reasons it is advisable to fall-plow the last possible furrow that can be turned for the spring-wheat crop of next season. In some northern spring-wheat sections the crop is large. It will be late before the crop is harvested and threshed. Farmers will be busy. Too frequently it happens that with a big spring-wheat crop farmers are kept so busy handling it late in the fall that they fail to do the normal amount of fall plowing. As a result much spring wheat has to be stubbled in or put in on poorly prepared ground or not put in at all. Frequently spring comes on so late that there is neither time nor available power to do the necessary amount of plowing in the spring. If the land is fall plowed there are the advantages of early seeding, a firm seed-bed, and the increased certainty of having time, labor, and horsepower to devote to other pressing spring work.

The special share of the extension workers and farm bureau officers and committees in this fall-plowing-for-spring-wheat drive is to help the entire farming population to realize to the full the need for the full normal acreage of spring wheat on suitably prepared spring-wheat land and the very great importance of fall plowing as the best possible preparation.

FARM BUREAU BACKS NATION'S WAR PROGRAM

Probably the most important instrument in carrying out the Nation's war program in agriculture to-day is the county farm bureau. There are now organized in the northern and western States 760 county farm bureaus with a membership of 257,808 of the country's most practical farmers, who without exception are united with the county agents in developing a war program. Campaigns for increased food production are carried on through the agency of the farm bureau in all counties where such bureaus are organized. The farm bureau in cooperation with the county agent decides which are the county's most pressing problems and devotes itself to working out a program to include them. It is the county farm bureau, as the representative of the farmers of the country, which must stand behind the Department of Agriculture's effort to secure a 7 per cent increase in wheat acreage.

Planting the required acreage is only one step in the work of increasing the Nation's crops. To secure high yielding varieties of grain, to assist the farmer in getting seed at a reasonable price, to guard the crops from disease and protect them from the ravages of insects, to save grains suitable for human food by feeding more roughage to livestock, to provide better balanced rations, to help in securing farm labor, to show ways of saving human labor by the introduction of machinery, above all to secure the cooperation of all farmers in the campaign to increase production—all these are accomplished through the medium of the farm bureau with the assistance of the county agent. The county farm bureau represents the farmer; and upon the farmer depends the success of the Nation's war program.

> LET us keep our bodies strong, our minds clear, and our hearts pure so that when we have finished the butcher business we can wash the blood from our hands and leave no stain upon them, can brush our garments and leave no smell of battle upon them, and present our souls unblushing and unashamed to our God.—Clarence Ousley.

STORE POTATOES AT HARVEST TIME

The potato crop of the north is produced to supply a demand for a period of seven to eight months. For this reason the crop must be stored in part in the consuming centers and in part in the region where it is grown. The crop is so bulky and heavy that it can not all be handled by the rail-

(Continued on page 10.)

IN THE SOUTH

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

SEED CORN

The valuable instruction given in the early spring with reference to selecting and testing of seed corn should not be lost or forgotten, but should bring results at this time.

Every farmer should go into his cornfield, select suitable ears and so mark them that they may be readily distinguished at harvesting time. After the seed corn is harvested it should be stored so as to protect it from extremes in weather, insects, rodents, etc. The labor shortage makes it absolutely necessary for the farmers to have good seed in order to avoid the loss of time and effort spent in replanting.

WHEAT

The agricultural program for 1919 calls for an increase in the acreage planted to wheat. Farmers should select the land to be planted to wheat and thoroughly prepare the seed bed. The yield per acre is as important as the acreage, hence the importance of selecting the farm land best adapted to wheat and the procuring of good seed free from disease and weed seeds. All seed suspected of having smut should be treated to insure against loss from this trouble.

CUTTING AND SHOCKING CORN

This is a big problem of the farm to be solved in the month of September. The shortage of labor makes it necessary for farmers to use machinery, especially where large acreages are planted to corn. Farmers of every community should cooperate heartily in the exchange of labor and machinery to the end that the corn crop may be promptly cut and shocked.

OATS AND RYE

A relatively large acreage in oats and rye, which require less labor than cotton, tobacco, or other intertilled crops, will materially assist in relieving the acute labor situation which will undoubtedly prevail next spring and summer. For this reason an increased acreage in these crops should be planted in all the cotton States. Good seed, a well-prepared seed bed, and early planting are the important factors in growing a successful crop of either oats or rye in this section. That small grains must

be planted reasonably early to insure against winterkilling is shown by the experience of the past two years.

Oats and rye, planted the latter half of September and the first half of October in the central cotton belt have a better chance of going through the winter undamaged than when planted later in the fall. Oats should be planted, too, on a firm seed bed and not planted too deep, so that they will come up and be well rooted before the severe freezing weather of the winter sets in.

Abruzzi rye should be more extensively planted as a winter cover crop throughout the South. When planted in September in the cotton States, it produces good fall and winter grazing and furnishes an excellent cover for the soil to prevent washing during the winter months. Abruzzi rye also is a most excellent small-grain crop for the South.

The oat crop when put in at the proper time in the fall in the central part of the cotton States produces a cheap and excellent feed crop, which can be produced with a minimum outlay of labor.

EARLY FALL PLOWING

The benefits of early fall preparation of land are so conclusive that it would seem unnecessary to call attention once more to the desirability of this practice. In many sections of west Texas and Oklahoma, as well as in central Texas and central Oklahoma, the difference between success and failure in crop production has been measured by the early preparation of the land the preceding fall. Seasonal rains in these latitudes are apt to occur in the early fall rather than the late fall or winter, and a safe system of farming indicates the desirability of preparing the land in such a way as to receive and retain this moisture.

SAVE YOUR STRAW

Reports coming to this office indicate the drought in central Texas, west Texas, and western Oklahoma has been very severe, and the production of feed crops will not be sufficient for the needs of that country. Shipments are already being sent forward to sustain the live stock and avoid the necessity of shipping out, with the hopes that early fall rains will revive the pastures. For this reason it is desirable that farmers should take special pains to keep in good condition all their wheat and oats straw, kafir cornstalks, and other roughness that can be used for feed later in the season in case this drought should continue. Oats straw or wheat straw in connection with cottonseed cake makes a very good ration for cattle, and there will undoubtedly be an active market demand for all the straw that is offered for sale.

Better Prices Reward Farmer Who Skins Animals Well and Takes Care of Hides

The present very urgent demand for leather as a war necessity and the increase in price which unscored hides bring on the market emphasizes the importance and even necessity of exercising the utmost care in removing skins from farm animals. By devoting a little extra time necessary in skinning animals carefully—possibly only three to five minutes in taking off the skin of a calf, or fifteen minutes in the case of a beef hide—the value of the hide may be increased several times, say specialists of the United States Department of Agriculture.

The tanner pays more for packers' hides than for those obtained from farmers or country slaughterers. This is due in part to better facilities in the large packing houses for curing and storage of hides, but principally to the fact that such hides have been taken off properly. Country hides removed by unskilled workmen are often cut and scored. When such hides come from a tannery, scores show very plainly, and in many cases one-half of the thickness of the leather is lost by such defects.

Avoiding Imperfections

Imperfections can be avoided by the careful use of the skinning knife, by keeping the hides clean and free from blood and by proper storage and packing.

The use of the knife, the specialists say, may be avoided in taking off calfskins, except on the head, neck, legs, and flanks, as the body skin may be drawn or fisted off. Where the knife is used, the skin should be drawn taut with one hand, while the knife is used with the other, special care being taken to hold the back of the blade close to the skin. In lieu of the knife some butchers use a wooden stick shaped like a man's thumb and employ a knife only on the portions of the body mentioned.

It is objectionable to have blood on the hides, particularly in the summer time, as it is likely to cause the hair to slip from rotting or decomposition when the hides are packed and the placing of otherwise good hides in the No. 2 grade on the market.

Let Hides Cool

Care should be taken to avoid placing any hides in the pack until they are free from animal heat. Allow them to lie folded for from 3 to 5 hours, or sufficiently long to allow the animal heat to get out of them. If this is not done patches of decomposition may result and such hides are often reduced in market value at least a cent or more a pound.

In building up a pack of hides, the outer edges should be kept a little higher than the middle, so that the liquid or brine formed by the dissolving of the salt in the natural moisture of the hides may be absorbed by them. If the pack is low on one side, or is built slanting like a shed roof, the brine will seep out, causing the hides to shrink in weight. Use salt that has been screened and is free from large lumps and dirt. Dirty salt will stain the fresh side of hides. One pound of salt to each pound of the hide is the general rule. Hides should remain in pack from 15 to 30 days and stored in cool (60° to 65° F.) cellars from which the outside air is excluded.

The results of cooperative bull-association work are encouraging. Of the 17 daughters of bulls in one association, 16 excelled their dams. The average production of the daughters was 1,145 pounds more milk than their dams, and 26.7 per cent more butterfat.

LABEL SEED PACKAGES.

Of course, it is a good thing to save garden seed. But carefully saved seed should be well labeled and stored to save confusion next spring. Cloth bags are the best containers for large seed and well sealed envelopes are satisfactory for smaller kinds. Every envelope or container should show the kind and varieties of seed, the date, including month and year when harvested, and the place where grown.

NEED OF ANIMAL FOOD

It has been found that such animal food as milk, eggs, and meat contains growth-producing substances in quantities sufficient for the rapid growth and development of the body. While these substonces are found in certain vegetables and grain, they are in quantities so small that often in the ordinary diet sufficient quantities are not consumed to meet the needs of the growing body.

The principal questions in connection with seed wheat supply are that the variety shall be pure, well adapted to the locality, and the seed free from noxious weed seeds and not infected by destructive plant diseases. Home-grown wheat should be used for seed wherever possible.

LOOSE SMUT IN WHEAT MAY BE CONTROLLED

Treat Seed with Hot Water Before It Is Planted This Fall

Develop an Isolated Plat for Growing Smut-Free Grain and Furnish a Safe Supply for Future Crops

Within a radius of 100 miles of the National Capital, probably more than 3 million dollars' worth of wheat vanished into the air this season as the wind dispersed the black, sooty masses of spores which appeared in place of the heads of grain. A specialist of the United States Department of Agriculture returned from a recent trip so reported the damage done in this region. Extensive losses also have been suffered on account of this disease, known as loose smut, throughout the wheat-producing area east of the Mississippi River and particularly along the Atlantic coast.

Ordinary methods of disinfecting seed grain with copper sulphate or formaldehyde are of no avail in controlling this kind of smut in wheat. Treating the seed with hot water before planting this fall, by methods described in Farmers' Bulletin 939, is therefore being urged by the Department of Agriculture as a means of stopping these losses and contributing to the supply of this essential food grain.

The treatment can be used satisfactorily on part of the seed for this years' planting and this should be reserved for a seed plat. This plat, if properly isolated from other growing wheat, will furnish smut-free seed for sowing the whole crop next year, so that the harvest of 1920 may be benefited materially. While treatment will not be of immediate value from the point of view of at once adding to the supply of wheat, for the reason that it is impracticable to treat seed for the entire crop, the extent of losses shows the importance of early attention to the possibility of their recurrence.

Seed Treatment Necessary

The methods which are effective against this loose smut in wheat resemble the process of pasteurization. They are not easily applied on the farm, and when isolated cases of serious losses occur most growers prefer to change seed rather than undertake the treatment. However, loose smut has been so general in the East this season that there seems to be little likelihood of gaining much by purchasing new seed unless it is positively known to have come from a field free from smut.

In districts which have been seriously affected this year the grower is advised to consult his county agent regarding one of the two proved methods of seed treatment. In using the seed-plat method it will be better to give a somewhat severe treatment, even though it results in slight injury to germination, rather than to allow any of the smut to survive. If a few growers can be interested in the matter, sufficient seed can be obtained to clear the county of smut in the course of a few years. The county can then extend its influence to other districts.

Grain Driers May Be Used

There is some hope of eventually relieving the grower of the necessity for using the rather involved method of the seed plat, department specialists say. It appears entirely feasible, in view of the recent perfection of the method of pasteurization for seed grain, to develop equipment for carrying out this process on a commercial scale by the use of a grain drier. A large number of grain driers already are in use in the United States. They represent about 3,000,000 bushels daily capacity, and many are of a type which with slight modification could be used in applying a hot vapor treatment to the grain. The drier can then be used at once to dry the treated grain, which is always thoroughly soaked and difficult to handle after the treatment.

DEPARTMENT SOON TO PROMULGATE STANDARDS FOR SEA ISLAND COTTON

Standards for Sea Island cotton are soon to be promulgated by the United States Department of Agriculture, according to a statement just issued by the department.

The range of grade qualities of this cotton will be covered by six grade standards, numbers replacing former grade names as follows: 1, or Fancy; 2, or Extra Choice; 3, or Choice; 4, or Extra Fine; 5, or Fine; 6, or Medium Fine. The standards for length will show three staple lengths: $1\frac{1}{2}$, $1\frac{5}{8}$, and $1\frac{3}{4}$ inches.

These types have been examined by various cotton exchanges and merchants, and practically all these agencies have agreed that the grades and staples are representative of the crop as actually produced in a normal season. Suitable material has been collected for the making of the standards, and copies of both grade and staple types will be promulgated and ready for sale before the marketing season of 1918–19 opens. Grade copies will be $5 each, $30 for a full set of 6 grades, and staple types $1 each.

Persons contemplating the purchase of a set of copies of these standards can secure the desired information by addressing Charles J. Brand, Chief, Bureau of Markets, Department of Agriculture, Washington, D. C.

PLATFORM HARVESTER PAYS FOR ITSELF ON 40 ACRES OF CORN

If you have 40 acres of corn to cut and help is scarce, try a 1-horse corn harvester of the platform or "sled" type. This outfit is cheap—if homemade, as many are, it costs little more than the ordinary stone boat—and it will give good service for years. Providing such a harvester may be less trouble than finding an extra man to cut corn, and the man labor saved in cutting 40 acres of corn usually will more than pay for the machine. At the same time the work will be done in better season. Under normal conditions, two men with one of these simple machines, drawn by one horse, can cut and shock or load 5 acres a day. Cutting only 4 acres a day, three men cutting by hand, which is a disagreeable job, would have to work hard to keep up with them. The machine saves time and labor; also a lot of energy as compared to the hand method of cutting corn.

SOME ADVANTAGES OF DAIRYING

1. The sale of dairy products furnishes a steady income throughout the year. The farmer who depends upon crop sales for his income usually makes the bulk of his sales during one or two months of the year, while during the rest of the year he has no cash income. Such a system requires long credits in the community.

2. The market for dairy products fluctuates very little year by year as compared with other farm products.

3. Through the return of manure to the land the fertility and physical condition of the soil may be maintained at a high level and crops increased. Even after many years a properly maintained dairy farm has constantly increasing crop yields instead of decreasing ones.

4. In dairying, labor may be utilized at a more uniform rate throughout the year than in nearly any other farm business. The grain grower, for example, may have to employ much additional labor at harvest time, but so far as the dairy is concerned the dairyman has about the same duties to perform every month of the year. Thus, less help is required seasonally and permanent employees may be kept.

5. Through the dairy cow many unsalable roughages may be transformed into products from which cash may be realized. Grass, hay, corn fodder, and other roughage which may not have a ready sale are economically utilized by the dairy cow. Land which is not suitable for cultivation can be utilized for pasturage for dairy cows.

To care for the surplus vegetables in many cases requires nothing more than the use of existing facilities in or near the home.

DON'T CALL POLICE FOR THE THIEF IN YOUR WHEAT FIELD

Simple Treatment of Seed Will Kill The Robber Smut

Methods of Stopping Destructive Plant Disease Are Explained in Bulletin Offered Free by Department of Agriculture

There is a robber in American wheat fields that steals millions of bushels of grain annually. But the 1919 wheat crop can be made burglar-proof, as far as this particular robber is concerned, and food for thousands of soldiers will be saved. The disease known as smut is the thief, and a simple treatment of the seed is the preventive. There are four kinds of smut which occur on wheat and barley, according to the United States Department of Agriculture, two of which (bunt or stinking smut, and covered smut) are effectively controlled by soaking or dipping the seed in or spraying it with formaldehyde solution Loose smut is controlled by treating the seed grain with hot water.

Treating Affected Seed

Seed to be treated fer smut should be cleaned in a fanning mill. Use formaldehyde (40 per cent solution) diluted at the rate of 1 pint to 40 gallons of water. If the soaking method is used, allow wheat to remain in a tub of the disinfectant 10 or 20 minutes, and barley 30 minutes to 2 hours. To get the best germination results, the grain should be sown as soon as treated. If this can not be done, it should then be spread out and dried, for improper drying after treatment may injure the seed.

Solutions of the same strength mentioned should be used for the dipping and sprinkling methods. In dipping, after thorough cleaning and grading, the seed grain is placed in gunny sacks, which should be filled not more than half full and tied at the top. After dipping repeatedly in the solution, the sacks of grain are put where they will drain and dry enough, so the seed will run freely through the drill. If not used within two hours, spread the seed out to dry and air.

Application may be made with an ordinary sprinkling can while the seed is being shoveled over from one pile to another. One gallon is sufficient to cover a bushel of grain when this method is used. The grain must be so well stirred that every kernel is thoroughly wet. It is then covered with sacks or other cloth wet with formaldehyde solution, and allowed to stand for a period before being spread out to dry or sacked for use.

Giving the "Water Cure"

There are three methods of treating seed with hot water. The short method consists of dipping the wheat or barley for from 10 to 15 minutes in water ranging from 126 to 135 degrees F. and cooling and drying it immediately. To control loose smut the seed should first be soaked 4 to 6 hours in cold water before treating with the hot, or a lower temperature than recommended for the short method should be used and the soaking prolonged. If the latter method is used, keep the water at from 111 to 115 degrees F. and soak the seed for 3 hours.

Disinfecting seed grain will prevent certain diseases other than smuts (but not rusts), and thus may increase the yield even more than would be indicated by simply replacing the smutted with sound grains. More complete information on cereal smuts and the disinfection of seed grain is contained in Farmers' Bulletin 939, a copy of which can be obtained, so long as the supply lasts, by applying to the United States Department of Agriculture, Washington, D. C.

GRAIN SORGHUM SEED SHOULD BE ASSURED NOW FOR USE NEXT SPRING

Now is the time to provide for a supply of grain sorghum seed to sow next spring, say specialists of the U. S. Department of Agriculture. Select enough of the best heads from the field before harvest time, they add. Pure and high germinating seed of adapted varieties gives best results. Uniformity in stand and in ripening of the crop increases the yield and quality of the grain. When the stalks are all of the same height, harvesting is easier, whether done by hand or by machinery. A lot of poor seed is used each year which is a source of loss to the growers. Guard against that loss next year by selecting home-grown seed. Do not depend on the grain bin or that of neighbors for a supply.

Important Points in Selecting Seed Heads

1. Select heads from plants all of which are dwarf or of average height.
2. Select early maturing heads.
3. Select well-formed and well-filled heads of the same type and uniform in size.
4. Select heads that grow completely out of the boot.
5. Select compact, not sprawly, heads, with short, well-loaded branches.

Make the Selections Now

Go into the field where the stand is good and the plants grew under average conditions. Keep as far as possible from other varities in order to avoid hybrids. Select good early heads from rather low stalks of uniform height, of a variety which is adapted to local conditions and has made good in the neighborhood for several years. Make the selections as soon as the early heads are fully ripe. If this work is delayed until after the whole crop is ripe, it is impossible to tell which heads ripened early. Poor seed of mixed varieties produces low yields of poor quality grain. Lost profits result. Now is the time to guard against loss from that source.

WHAT THREE MEN CAN DO WITH A CORN BINDER

With a corn binder and three horses, in corn that is standing well, three men, one to drive and two to shock, can harvest about twice as much as when cutting by hand. From 7 to 9 acres can be cut in a 10-hour day with a binder. The same three men could scarcely cover more than 4 acres in the same length of time when cutting by hand. With the binder they can cut and shock a 40-acre field of corn in a week or less, effecting a big saving in time, though perhaps none in expense. The binder delivers the corn in bundles, which makes it considerably easier to handle both in loading on wagons and at the ensilage cutter. If your acreage in corn is not large enough to justify an investment in a modern corn harvester, join with one or two of your neighbors and purchase one cooperatively. If this can not be done rent a binder. It will take the place of one hired man in cutting and shocking, or two in cutting corn for ensilage.

MILLION DOLLARS LOANED TO MEET FIRE DANGER IN NATIONAL FORESTS

A loan of $1,000,000 has been made to the Forest Service from the President's special defense fund to meet the unprecedented danger of fires in the National Forests of the Northwestern and Pacific Coast States.

Forestry officials regard the present fire season in the northwest as being in some ways the most serious with which the Government ever has had to deal. Early drought, high winds, electrical storms, labor shortage, and depletion of the regular protective force because of the war, have combined to intensify the fire danger. Timber necessary for airplanes, gun stocks, and other war equipment is in hazard.

Resort to the President's special defense fund was necessary because the 1918–1919 appropriation bill for the Department of Agriculture has not yet been passed by Congress.

When considerable quantities of vegetables are grown it is frequently advisable to construct permanent storage facilities in the form of a storage room in the basement of the dwelling or under an outbuilding or to build an outdoor cellar of wood or masonry.

Cattle Tick on the Run in 22 Oklahoma Counties—Council of Defense Indorses

Progressive stock raisers are fighting a winning battle with the blood-sucking cattle fever ticks in Oklahoma.

Through their effective cooperation with the United States Department of Agriculture and the Live Stock Sanitary Board of Oklahoma in dipping cattle it is expected that 22 counties will be released from quarantine December 1, 1918. During May there were 987 dipping vats available and there were 889,144 dippings of cattle. During June 995 dipping vats were available and there were 841,263 dippings of cattle. The Oklahoma State Council of Defense firmly endorses the cattle tick campaign as a food conservation measure and in this it has the support of the Governor of the State.

Defense Council Backs Work

In a statement just issued by the Oklahoma State Council of Defense this body goes on record as regarding the eradication of the cattle tick, which conveys a disease that kills thousands of beef-producing animals and makes scrubs of all in a quarantine area, a most important food conservation measure. At a meeting of the council held July 27 a resolution was passed directing county councils to endorse the action of the State and Federal agents in their work and to aid and cooperate with them in carrying it out in every way possible. It is hoped, the statement says, that no misguided citizen, for reasons which may appear to him of personal importance, will in any way lend himself to the creation of any opposition to this important food conservation measure which will also contribute very materially to the prosperity of the State.

The benefit to be derived from eradicating the tick is shown by the improved conditions after quarantine has been lifted. Restrictions on shipments of cattle have been removed, the loss from tick fever has been eliminated, more cattle are being raised, and a better grade of breeding stock is being introduced. Calves grow faster, cattle put on flesh more rapidly during the grazing season and go into the winter in better condition because of the absence of the tick. Dairy cows give a greater yield of milk, and the values of farm land are enhanced. In appearance the cattle show a marked contrast since the tick has been eradicated. Pure-bred cattle have been brought in from other sections to improve the native breed without any loss from fever. The southern animals can enter the show ring of the North without restrictions.

In Mississippi, the first State touching the Gulf of Mexico to have all its territory removed from quarantine, the State-wide eradication law, passed in 1916, is regarded by many as one of the most progressive pieces of legislation enacted in the State for many years. The Mississippi Commissioner of Agriculture says that if the necessity for such a law had been realized four years prior to its passage, Mississippi would no doubt be the greatest cattle-producing State in the Union at the present time. The people who were responsible for getting this law on the statute books foresaw the possibilities for the permanent development of Mississippi's resources and turning into profits the abundance of pasture grass which had annually gone to waste or was eaten by unthrifty cattle to make blood to feed ticks.

Louisiana passed a State-wide tick eradication law in 1917, and at the time it was under consideration planters, cattlemen, and others throughout the State, hastily sent to their various lawmakers a flood of telegrams urging them to support the measure. This State-wide law did not become effective until the first of last April. Records show that during March 250,000 dippings were made under State or Federal supervision, while in April the figures leaped to 1,700,000 and increased to over 2,000,000 during each of the following two months. Louisiana demonstrated that a State can not afford to wait on a few uninformed stockmen who are opposed to dipping cattle and who have failed to advise themselves of the benefits to be derived from complete eradication.

The entire South is looking forward with confidence to an era of great prosperity in the cattle industry as the net gradually closes around the last cattle tick.

LOOKING FORWARD IN FARMING

NORTH AND WEST

(Continued from page 6.)

roads at one time. In order therefore to conserve the crop and adequately supply the trade, as well as to stabilize prices, steps should be taken to secure a constant and adequate flow of potatoes from the producer to the consumer. This means adequate storage on the farm and more attention to buying in quantity and holding potatoes by the consuming population. This involves both the dealer and the private user. In normal times 25 per cent to 30 per cent of the stocks on hand should be held by dealers. Last year 20 per cent or less of the crop was in dealers' hands January 1. A cold spell followed, transportation was difficult and hazardous, and the consumption of potatoes dropped off because of inadequate supplies in the cities, with the result that enormous quantities were held by growers late in the season, and some were disposed of at a loss. The most regrettable feature, however, was that this valuable food was not available when it should have been and as a result did not serve its best purpose in feeding the Nation. Every family that can secure and store its supply of potatoes for winter this fall should do so.

Potato seed.—American potato yields are not as high as they should be. Careless methods of seed production and seed selection are among the causes contributing to these low yields.

At harvest time, dig by hand a sufficient area to permit the selection of hills containing a suitable number of tubers of the size and shape desired. Place the product of these hills in storage and hold them as seed stock for planting a seed patch for next season from which the succeeding year's supply of seed may be harvested. Build up a superior stock of seed potatoes, selecting healthy productive hills producing good specimens of the variety.

Store the home-grown root crops.—Home gardeners who have not already provided storage rooms for the supply of storable tubers and roots growing in their gardens should immediately take steps to make provision for protecting these products so as to make them available for use long after conditions outside are unsuitable for growth. Such storage rooms can be provided by partitioning off a corner of the cellar of the house or, where the supply is large, the cellar of an outbuilding or a specially constructed storage cellar may be needed to serve the purpose.

A discussion of such storage rooms and buildings will be found in Farmers' Bulletin 879.

FALL FEEDING OF DAIRY COWS

The wise dairyman will feed liberally during the fall months. Cows which are not well fed at this time will go into the winter thin in flesh and with reduced milk flow. It will be expensive and largely in vain to attempt to bring them back to normal flow after they go on winter rations.

It will pay to begin feeding silage and hay early. The extra feed given at this time will not only bring good, immediate returns, but affect the milk flow for the whole year by putting the cow in good condition to go through the winter months. Cows which go into the winter in good vitality and with undiminished milk flow are the ones which will make most economical use of the high priced feeds given them during that period. Keep up the milk flow

during the fall months by proper feeding. It will pay.

COLD RAINS REDUCE MILK FLOW

Cold uncomfortable cows will not make economical use of feed. Their highly developed nervous systems are very susceptible to sudden changes in temperature. This should be borne in mind in the fall when the first cold rains and cold winds come. Protection from these will prevent the reduction in milk flow which they always cause. Do not waste feed by letting your cows stand out in cold winds and rain.

Dried apples.—The small amount of material available in the autumn of 1917 from which dried apples could be made resulted in an output far below the average. On the other hand the demand fer dried apples was above normal. As a consequence, the trade is not carrying over the normal supply of dried stock.

In those sections of the country where suitable equipment exists and where stock for drying is available, attention should be given to the utilization of apples suitable for drying purposes to the fullest possible extent. Care should be taken to maintain a high standard of quality.

Selecting bean seed.—As the bean crop nears maturity, go through the field and mark or, if sufficiently mature, harvest those plants which have suffered least from disease and which have the largest number of pods with the greatest number of beans per pod, in order that the seed so gathered may be planted in a few rows along one side of the field next year to serve as a bean seed patch from which the following year's seed supply may be saved.

POULTRY SUGGESTIONS FOR SEPTEMBER

Growing chicks should be looked after very closely as overcrowding is liable to happen, owing to the fact that the chicks are getting larger and need more room. This is a very important point, as many nights in September are close and hot. Care given the flock at this time means a profit; lack of care, a loss. The three important points are (1) fresh air, especially during the night, (2) fresh water at all times, and (3) clean quarters.

In every instance where egg production is the end sought, the pullets should be put into winter quarters as soon as possible. Their winter quarters should be ready in advance. At this season cockerels should be selected for next spring's breeders and placed by themselves with plenty of run if possible. None but strong, vigorous specimens should be selected.

Culling can be done all through the year, but at no time is it more profitable than at this season with the growing flock. All the weaklings should be culled out at once. This will save feed and give the stronger birds that remain room and opportunity to become more vigorous. The laying hens should be gone over again very carefully at this time and inferior ones should be taken out and marketed or eaten. Besides culling for egg production, look out for lice. Hens that have become too heavy or too light should be discarded.

Receipts From National Forests Show Increase For Year 1917-18

Receipts from the national forests in the fiscal year 1918, ending June 30, exceeded those for 1917 by almost $120,000 and totaled over $3,574,000. The increase does not come up to the big increase of the year before, which was more than $600,000, but still shows a healthy growth in most lines of business on the forests. The cost of operating the forests was about $4,000,000, and was practically the same as in the previous year. This is exclusive of the additional expenditures caused by the very serious fire situation and for which a special deficiency appropriation of over $700,000 was made by Congress.

This year's increase in receipts, according to the forestry officials, came mainly from the larger number of live stock grazed, although every revenue-producing activity on the forests except timber business and permits for water power contributed its share. The timber business fell off in consequence of the general let-up in private building activities on account of the war, the dislocation of transportation facilities during much of the year, and the labor situation, especially in the Northwest, where the timber business is ordinarily largest.

Less from Water Power

The falling off in receipts from water-power permits was caused, it is believed, by the uncertainty created by pending legislation. Many prospective permittees are holding back until final action has been taken on the legislation now under consideration.

Timber sales yielded over $1,500,000 and live stock grazing over $1,700,000. Slightly less then $100,000 was brought in from permits for water-power development. Other forms of land occupancy, including leases of land for summer homes, hotels, club grounds, apiaries, fish hatcheries, and canneries, brought in about $120,000. The sale of turpentine privileges on the Florida Forest brought in a little over $8,000.

Much of the use of the national forests is free. Settlers and residents of the small communities in and near the forests are allowed without charge reasonable amounts of wood for fuel. In addition, the settler may obtain timber for use in the improvement and maintenance of his farm and is given the privilege to graze free not to exceed 10 head of milch and work animals.

Increased Grazing Use

Fees for grazing cattle brought in approximately $1,039,000 and for sheep $663,000. Special efforts were made during the past year to increase the use of the ranges to the fullest extent in order to meet the needs of the Nation for meat, wool, and hide production. On one forest new range for 75,000 sheep was opened by building a special barge to transport the sheep across a lake to high mountain grazing lands which could not be reached in any other way.

Considerable cooperation was also given the Forest Service by grazing permittees in the construction of drift fences and the improvement of watering places. Although the range is being used to the limit the forestry officials are regulating the use carefully, with a view to preventing any permanent damage to carrying capacity.

SHEARING SHEDS FOR FOREST SHEEP

Because of the extreme dry weather in southern Utah, it has been found advantageous to erect three small shearing plants on the Sevier National Forest so as to avoid driving sheep long distances to the regular shearing pens, with the risk of heavy losses on the way. About 12,000 sheep were sheared at these plants.

WHEN WHEAT FOLLOWS CORN

As much of the winter-wheat acreage follows corn, late preparation of the seed bed is made necessary by the late removal of the corn crop. To aid in the preparation of cornland unusual attention should be given this year to keeping the corn crop as free as possible from weeds. As soon as the crop is removed the land need only be disked to make an economical but ideal seed bed for wheat.

SAVE SEED FROM THE GARDEN

As an emergency measure it is important that as much seed as possible should be saved on our farms and in our market gardens. It has been done widely in the past and can be done readily again.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Labor Conferences in Every State

What is considered one of the most important projects to deal with, the farm-labor situation, is now being planned by labor specialists of the United States Department of Agriculture. Farm labor conferences will be held during September and the first part of October in every State in the Union, where the Federal labor specialists and officials of the States Relations Service will discuss labor questions and their solution with officials of the State agricultural colleges, State farm-help specialists, county agent leaders, extension leaders, and others interested. The object is to get all agencies to work together and to have the various departments of the State colleges to consider how their campaigns can be carried on with a minimum amount of labor. For example, if the dairy department of a State college is planning to conduct a campaign for increasing the number of dairy cattle in the State, the officials of that department will be asked to show how the program can be carried out with the minimum or present supply of labor. Each department will be asked to recast its program, so that it can be met with present supplies of farm labor.

War-Time Food Production

A $32\frac{2}{10}$ per cent total increase over last year in production of staple food crops is shown in the canvass of farms in New Hampshire made by the Town Food Production Committee under the direction of the county agents. The increase varies with the different crops. New Hampshire formerly raised very little wheat or barley, so that a relatively small acreage means a large percentage increase. This fact explains an increase of 412 per cent for wheat and $137\frac{2}{10}$ per cent for barley. The production of potatoes has increased $3\frac{6}{10}$ per cent; beans, $13\frac{4}{10}$ per cent; corn, $19\frac{2}{10}$ per cent; and oats, $51\frac{7}{10}$ per cent.

The county agent for Cheshire County reports a new device for showing the increased production of cereals. A sign is planted in the field with the slogan: "This Farm is Growing One or More Acres of Cereals to Help Win the War—Cheshire County Farm Bureau Association." One hundred and fifty such signs have been purchased for posting about the country.

Forest Service in "War Cabinet"

The Forest Service is represented in an "Advisory War Cabinet" created by C. C. Moore, now at the head of the California State Council of Defense. The Food Administration, Red Cross, Liberty Loan, and other organizations also are represented. Various county councils in California are to be reorganized and a number of Forest Service officers have been recommended for appointment to them.

Food Conservation on Street Corners

A new kitchen on wheels is carrying the message of food conservation in street meetings to many Boston women who have not been reached directly in any other way. A motor truck, which has been contributed by a public-spirited woman of the city, has been fully equipped for food demonstrations that are given by home demonstration agents of the United States Department of Agriculture and the State agricultural college cooperating with the State Food Administration. The truck carries a large-sized electric stove, a white-enameled kitchen cabinet, a zinc table for hot dishes, and an enameled table for the actual work of cooking and canning. Two dozen camp chairs are also provided, and other chairs and benches are usually brought out from homes in the vicinity of the demonstration. The audiences have averaged about 60 women, fully as many children, with 10 or 12 men in the background. A trained nurse goes along, who speaks for 15 minutes before or after the regular demonstration on the feeding of children and the importance of milk.

Governors in Forest Fire Campaign

Gov. Withycombe, of Oregon, and Gov. Lister, of Washington, have joined in the Forest Service's campaign against forest fires by issuing proclamations calling attention to the great fire danger and warning campers and other forest users to use the most extreme care. Posters have been sent to the National Forest Supervisors. Slogans on them read: "All Campers Should Carry Shovels" and "Patriotic People Prevent Forest Fires."

Helps Assure Oil for Airplanes

Castor oil—essential to the efficient operation of rotary aviation motors, great numbers of which are now in use abroad or are being manufactured—was found in September, 1917, by the Signal Corps of the Army to be needed in largely increased quantities for the aircraft program. Cooperation between the Department of Agriculture, the War Trade Board, and the materials department of the Bureau of Aircraft Production, with foreign advice and assistance, has solved the problem, according to a recent statement from the Bureau of Aircraft Production. It is estimated that 2,000,000 gallons will be available this fall from 108,000 acres planted to castor beans in eight Southern States and California, and from a large acreage in Cuba, Haiti, and Santo Domingo.

Grain Fields Saved From Fires

During 1917 crops valued at $130,000 were saved from destruction in California through the fire-fighting campaigns initiated through the Farm Bureaus by county agents throughout the State. A Ford auto truck equipped with an extinguisher and other fire-fighting apparatus were purchased by one county by levying an assessment of 2 cents per acre on its grain land. Fifty thousand dollars worth of grain were saved in Stanislaus County alone through its newly organized fire department. San Diego led all the counties in fire protection, with an appropriation of $9,500 for the employment of fire bosses, the securing of equipment, and the paying for labor consumed in fighting fires.

The farmers of California have decided to eliminate at least the losses to their crops due to fires. All the principal grain-producing counties have now secured appropriations and appointed fire bosses and trailers as a result of the combined efforts of their county agents and representatives of the Forest Service.

Need of Iron and Steel in Farming

Following the receipt of letters from hardware dealers indicating a serious

shortage in the kinds of iron and steel used by country blacksmiths and in farming operations, the Bureau of Markets made a survey of stocks held by wholesale hardware dealers and of their estimated needs for six months. A questionnaire was sent to dealers who furnish supplies directly or through retail dealers to country blacksmiths and farming communities. Replies from some 250 dealers indicate that in most instances supplies on hand on June 1, 1918, were much less than those of a year ago. Many dealers reported a shortage below actual requirements for the next six months, particularly in the case of barbed wire, nails, and other fencing materials, sheets for roofing and for silos, and steel bars of a size suitable for wagon tires and farm repair work.

Because of the need for iron and steel in war industries the priorities committee of the War Industries Board requires dealers in need of supplies to file a statement, on blanks provided for that purpose, showing the uses for which the materials are desired. The committee then gives the dealer a rating, determined by the essential character of the supplies required, and the higher ratings receive the first attention in distributing the available iron and steel.

More Food Made in New Hampshire

New Hampshire's worth-while work toward winning the war is demonstrated by an increase of 32.2 per cent in staple food-crop production over the results of last year, according to a census made by local food-production committees and the county agents. Wheat production has increased 412 per cent, while the barley output is 137.2 per cent in excess of that of 1917. Formerly only small areas were devoted to these grains, and hence the production of only a small acreage meant a large per cent increase. Other farm crops have increased on the percentage basis, as follows: Potatoes, 3.5; beans, 13.4; corn, 19.9; and oats, 51.7.

To Gather Seed for Timber

This year's seed crop of western yellow pine is unusually abundant in California, and an effort is to be made by forest officers to gather large quantities of the seed for use in the reforestation work of the Forest Service. Western yellow pine is one of the most important sources of the country's timber supply.

Sheep Raisers Organize

More than 30 county sheep breeders' associations have been organized by the sheep specialist of the United States Department of Agriculture in Texas. The object in organizing these associations and the purpose of the members is to raise more and better sheep as a wartime emergency in answer to the Government's call for increased production of wool and mutton. A poster with the slogan "More sheep—better sheep," which is being widely distributed by the Texas sheep specialist, is reported as being an important factor in stimulating interest among sheep raisers.

Better Yielding Wheat and Oats Developed

Strains of wheat and oats that are superior to ordinary varieties have been developed in cooperative cereal experiments conducted by the United States Department of Agriculture and the New York State College of Agriculture. These experiments have been in operation for about 10 years. Many comparative tests conducted in various parts of the State show that the new strains make better yields than ordinary varieties grown under the same conditions. With some of these strains sufficient seed has been grown to make possible a rather wide distribution in the State, and they are being grown this year on large acreages.

Drought-Stricken Farmers Send Special Delegates to Washington

The drought-stricken farmers of Montana, represented at a meeting of Farm Bureau presidents, at Helena, elected J. M. Davis, president of the Teton County, Mont., Farm Bureau, as a special delegate to go to Washington and present the facts of their situation to the Secretary of Agriculture. The expense of sending the delegate was shared by 13 farm bureaus. Mr. Davis, accompanied by Gov. Stewart, of Montana, met in conference with Secretary Houston, the Committee of War Finance Corporation, and other committees. An arrangement was made by which a part of $5,000,000 set aside by the President will be made available for extending credit to Montana farmers in drought-stricken areas for the purchase of winter seed wheat and rye. A special freight rate of one-half the regular rate on hay will be granted to relieve the feed situation, and plans for further relief are being considered by the Secretary of Agriculture and the War Finance Corporation Committee.

The aim of the Government is primarily to aid farmers who have exhausted their resources, in order that they may continue to remain on their farms at a time when the country needs all its farmers. The Department of Agriculture through its special officers, including the county agents, will consider the needs for individual farmers.

Farm Bureaus Aid in Fighting Fires

California county agents and representatives of the Forest Service saved $130,000 worth of grain crops from fire losses during 1917. All the principal grain-producing counties have raised funds, purchased equipment, and appointed fire bosses for this first-aid work. One county by levying a tax of 2 cents an acre on its grain land was able to install a truck properly equipped with an extinguisher and other fire-fighting apparatus. Equipment and organization of similar character saved $50,000 worth of grain in Stanislaus County. San Diego expended $9,500 for like protection and is regarded as the best-equipped section of the State.

Farm Boys Make Money From Moles

"Remember that the mole is the Kaiser's land submarine, and it is up to us to eradicate them as our Nation is cleaning out the sea pirates," reads a letter from a county agent in Oregon to a young hunter of Oregon City. Western Oregon is carrying on an intensive campaign to save her gardens and crops from the ravages of moles. The skin of a native mole is as valuable as any pelt which can be imported; hence county agents devised the plan of organizing the boys in each county to wage war on the moles. The skins are concentrated in a pool by the agent and are marketed when a sufficient quantity has accumulated. Oregon farm lads gain pin money and satisfaction from this work of protecting farm crops against rodent enemies.

SUGAR-SAVING CANNING

CORN SIRUP WITH SUGAR

This table shows the proportion of corn sirup, sugar, and water that may be combined for making canning sirups of different densities:

Corn sirup.	Sugar.	Water.
THIN SIRUP.		
1 cup.	1 cup.	2⅔ cups.
2 cups.	1 cup.	4 cups.
3 cups.	1 cup.	5⅓ cups.
MEDIUM SIRUP.		
1 cup.	1 cup.	1⅔ cups.
2 cups.	1 cup.	2½ cups.
3 cups.	1 cup.	3¼ cups.
THICK SIRUP.		
1 cup.	1 cup.	1 cup.
2 cups.	1 cup.	1½ cups.
3 cups.	1 cup.	1⅞ cups.

GARDENERS URGED TO SAVE SEED FOR NEXT SEASON'S PLANTINGS

Insure Supply by Selecting the Best from Home-Grown Sources

Preserve with Care the Stock That Has Shown Success in the Locality Where It is to Be Grown Again

Saving seed from the home garden—a practice that was the rule in earlier times—is the cheapest and best way of insuring a supply for planting next spring. Saving garden seed is an emergency measure; the supply is limited, yet thousands of people had gardens this year and last year who never raised them before. There is but one general principle, say garden specialists of the United States Department of Agriculture, underlying the production of good vegetable seed, and you probably know it: Save seed from the best plants. Seeds should not be gathered until maturity, the specialists add, and should be properly dried, placed in suitable containers, carefully labeled, and stored in a dry place where insects or mice can not get at them.

Even if the scarcity of seed does not emphasize the importance of saving a supply from the home garden, there are advantages to be gained by the latter plan. The selection which the gardener gives his seed plants, while not greater than that which the seed grower gives his seed stock, is often better than can be given to the seed that is placed on the market. The plants selected also will be the ones which succeed best under the local environment. Well-matured seeds, if properly stored, with the possible exception of those of parsnip and onion, should retain their vitality from 5 to 10 years, and for this reason it is urged that an abundant supply be saved, for if it is not all planted next spring, it can be laid away for the following year.

Mark Good Plants

Very little care is required to save seed for a home supply. With plants like beans and peas, which are gathered for food before the seeds are mature, a few of the finest plants should be marked and the seeds which they produce allowed to ripen completely. In making such selections it is best to choose plants alike in varietal character and earliness. Never save seeds from plants that have suffered from disease attacks. In selecting sweet corn for seed, select the best and earliest ears, mark them and allow them to mature on the plant before they are harvested. The ears should be dried immediately after harvesting and stored "on the cob." In saving cucumber and squash seed, select and mark fruits of desirable character while in the usable stage and allow them to remain on the vines until fully ripe, then remove the seeds and spread them out to dry before storage. In selecting tomatoes and potatoes for seed the vigor, productiveness, and freedom from disease in the plant should be taken into consideration.

Seeds which have been grown and carefully saved should be well labeled and stored, or all the previous labor goes for nothing. Cloth bags are the best containers for large seeds, such as peas, beans, and corn. They should be used also for larger quantities of small seeds, but for smaller lots, paper envelopes, made at home or purchased, are most desirable. Ordinary letter envelopes are fairly satisfactory, but usually are not gummed so as to close completely, and if handled carelessly, small seeds may sift out of them.

Correct labeling is of paramount importance. Every envelope or container should show the kind and variety of seed, the date, including month and year when harvested, and the place where grown. For the cloth bags, a slip of paper bearing all this information should be inserted with the seed. It is very convenient also to have a tag on the outside of the bag, but on no account should the inner label be omitted, because of the liability of loss of the outside tag.

Protection from Pests

Many seeds, especially beans, corn, and lettuce, are subject to injury by a number of insects, all of which may be destroyed by fumigation with carbon disulphid. A tight tin pail, box, or barrel makes an excellent container for fumigating seeds. For a tight barrel full of seeds one-half cupful of carbon disulphid is sufficient. For smaller containers, use in proportion. Seeds to be fumigated must be dry, and if they are in paper bags, the bags should be opened. The gas penetrates cloth bags easily. Immediately after starting the fumigation, the container should be covered with several thicknesses of heavy paper, or other tight cover, and allowed to remain covered from one to two days. A longer fumigation in tin pails is apt to injure the germinating power of the seeds. Carbon disulphid gas is highly inflammable. No lights, or fire of any sort, should be allowed near while fumigation is in progress, or an explosion may occur. The foul odor of the gas disappears after the seeds have been aired for several days.

After the seed has been properly labeled, and fumigated, if required, it is necessary to store in a dry, well-ventilated room. Cellars are too moist, attics are usually too hot, but a second-story room furnishes the ideal location. Seed can be protected against mice by storing in tin boxes or mouse-proof wooden boxes, or by suspending in cloth bags.

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations:

Bacteriologist, (male); salary, $1,800 to $2,500 per year. Vacancy at the Food and Drug Inspection Station, San Francisco, Cal., and vacancies in the Bureau of Chemistry, Department of Agriculture, for duty at Washington, D. C., and elsewhere, will be filled from this examination. Date of examination, September 10, 1918.

Assistant in fish investigations, (male); salary, $1,200 to $1,620 a year. Six vacancies in the Bureau of Chemistry, Department of Agriculture, for duty in the field, will be filled from this examination. Date of examination, September 24, 1918.

Assistant superintendent of seed warehouse, (male); salary, $1,200 per year. Vacancy in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C. Examination, September 24, 1918.

Assistant in dairy cattle breeding, (male); salary, $2,000 to $2,200 a year. Vacancy in the Bureau of Animal Industry, Department of Agriculture, Washington, D. C. Examination, September 24, 1918.

Applicants for the above examinations should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Laboratory aid in agricultural technology, (male and female); salary, $720 to $1,080 per year. Vacancies in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., will be filled from this examination. Date of examination, October 2, 1918. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

TO GIVE RAIL RATES ON FEEDER CATTLE, TEXAS TO POINTS EAST

The United States Railroad Administration authorizes the following:

Director General McAdoo announces that representatives of the live-stock interests of the Southwest have been advised that he will at once instruct that rates be published on feeder cattle from Texas to all points east, including Kentucky and Virginia. These rates will be on the basis fixed by the Interstate Commerce Commission in the Shreveport case plus the advances required by General Order No. 28, the rates for feeder cattle being 75 per cent of the beef-cattle rates.

There have not been heretofore any through rates on cattle from Texas to the southeastern territory, and these rates are to be published because of the emergency existing in the Southwest under drought conditions, which made necessary the movement of stock out of that territory to points where feed can be found.

FEDERAL AUTHORITIES WATCH MAKING OF CONDENSED MILK

Agents Inspect Factories Making This Dairy Product for Allies Armies' Use

Enforcement of the Food and Drugs Act Gives Government Authority for Assuring Its Purity and Nutritive Value

Federal food inspectors of the United States Department of Agriculture are giving special attention to factories where milk is condensed or evaporated for use of the allied armies and for consumers at home, according to the officials charged with the enforcement of the Food and Drugs Act.

Condensed or evaporated milk is a most important article of food even in peace times, in the opinion of the officials. It is used by bakeries and confectioneries, and in feeding babies and the sick, as well as being used as a general substitute for fresh milk wherever the raw milk can not be obtained in sufficient quantity or purity.

In time of war evaporated milk becomes a necessity, because it can be transported with ease and will keep a reasonable time under conditions where it is impossible to obtain or keep fresh milk. As much as 80 per cent of the output of many large factories is being shipped overseas for the use of the allied armies.

Inspectors Examine Factories

Inspectors examine the sanitary condition of factories where milk is condensed or evaporated, sterilized, and canned. Samples of the raw milk as received at the factories are taken for analysis by chemists and bacteriologists to see that it is clean and wholesome and that it possesses the proper proportion of butter fat and other ingredients. The processes of evaporation, sterilization, and canning are studied; samples of the finished evaporated product are taken for examination in order that it may be determined whether the evaporated milk has been condensed to the proper constituency, contains the right food elements, and is clean and wholesome. The contents of the cans are weighed and compared with the amount stated on the labels. The labels on the cans are critically studied to see that there is no misbranding or false statements made regarding the quantity, the quality, or the strength of the evaporated milk.

Inspectors of the various States cooperate with the Federal food inspectors in this work. The Federal Food and Drugs Act applies only to shipments of foods that enter interstate or foreign commerce. State inspectors have jurisdiction over products made and sold wholly within the State.

State and Nation Work Together

The joint authority of the Federal and State inspectors often enables them, working together, to correct abuses which either working alone could not reach. Adulterated or misbranded condensed milk, when shipped into interstate or foreign commerce, may be seized under the Federal Food and Drugs Act, and the manufacturer or other responsible party may be prosecuted under the criminal sections of the law. The State food inspectors have authority, under the law of some States, to require insanitary factories to close until put into sanitary condition.

Evaporated or condensed milk, as defined for the guidance of the officials in enforcing the Food and Drugs Act, must be made from whole, fresh, clean milk, and contain not less than 25.5 per cent of total solids, and not less than 7.8 per cent of milk fat.

Better Oranges And More of Them Obtained By Stabilizing Varieties

Not only an increase in production, but what is of equal importance, a higher and much more uniform grade of fruit, is secured by propagating only the most desirable strains of oranges. This has been demonstrated by specialists of the United States Department of Agriculture who have been conducting investigations since 1909 in citrus-fruit districts of California.

The primary objects of these investigations were to ascertain the variation which has taken place; to determine the extent to which the different variations have been propagated; and, if possible, to control the extent to which undesirable variations enter into the population of commercial groves.

The data collected have been published in Bulletin 623, "Citrus-Fruit Improvement: A Study of Bud Variation in the Washington Navel Orange," and Bulletin 624, "Citrus-Fruit Improvement: A Study of Bud Variation in the Valencia Orange."

The various strains of oranges are distinguished by differences in habits of growth, time of ripening, quantity and quality of crops, and other definite and marked characteristics. Trees of some of the undesirable strains show unusually strong vegetative growth, but a poor production of fruit which is of inferior quality. Trees of some other inferior strains bear fruit of irregular and peculiar shapes, undesirable and unattractive color, rough and ugly surfaces, thick peel, a large amount of coarse rag, or a small amount of juice, or juice of a sour or bitter flavor. The fruit produced by some strains is so poor as to be wholly unfit for market.

It is recommended that individual tree performance records be secured in all commercial groves, and that all trees of other than the most desirable strains be removed. This can be done by replacing the inferior trees, or by top-working them. All budwood, whether for use in top-working established trees or for nursery propagation, should be cut from fruit-bearing branches, one or more typical fruits of the strain desired being cut off with each bud stick as an index of the character of fruit which will be produced by the buds on that stick.

A practical method for securing tree performance records for the purpose of locating undesirable trees, and a discussion of the treatment of such trees, is contained in Department of Agriculture Farmers' Bulletin 794, "Citrus-Fruit Improvement: How To Secure and Use Tree Performance Records."

IS LARKSPUR GROWING ON YOUR RANGE?

Better make sure it is not. Stock may eat it and die from the effects. The loss of a single steer will pay for a large amount of work in eradicating the poisonous weed, but if larkspur is present the loss probably will not stop with but one animal. On the national forests where record has been kept of the loss of cattle due to poisonous plants, at least 5,500 head, valued at $300,000, have been lost annually during the last three years. Larkspur was responsible for 90 per cent of the losses. The cost of grubbing ranges from $3.65 to $4.15 per acre on ranges comparatively free from rocks and on rocky areas the cost seldom exceeds $10 per acre. Where complete eradication is an impossibility, frequently enough plants can be destroyed to reduce the losses, if not eliminate them completely; for a considerable quantity of the plants must be eaten, and in a short time, to produce serious illness. Destroy larkspur by cutting the roots at least from 6 to 8 inches below the surface. If this is not done new sprouts will grow. Do not leave the weeds where stock can get them, for they are poisonous, and as cattle show an especial fondness for them, the weeds should be destroyed.

HOW AND WHEN TO SEED WHEAT

Seeding wheat with a drill always is advisable. In general early seeding gives better results than late seeding. Where the Hessian fly occurs, time of seeding should be in accordance with the best advice given on this subject for each section of the country. Consult the county agent.

Feed the Young Wheat Plant to Produce Big Yield; Good Start Half the Battle

Wheat planted in soil that is provided with the right kinds of plant food in proper proportions will produce the best yields, just as young live stock fed a balanced ration will make the best gains in weight. It is therefore necessary, according to the United States Department of Agriculture, to supply the elements of plant food which are not already available in sufficient quantity in the soil. This is highly important in planning for the liberty wheat harvest of 1919, for which the Department of Agriculture is recommending that American farmers sow at least 45,000,000 acres to winter wheat this fall. While this acreage, which is an increase of 7 per cent over last year's sowing, is desirable, it is also of utmost importance that every means be taken to increase the yield per acre.

Stable Manure Useful

Stable or barnyard manure is of great benefit when added to soil sown to wheat. It supplies humus by the decay of the organic matter and contains nitrogen and potassium, sometimes in considerable amounts. It usually does not contain a sufficient proportion of phosphorus. If 40 or 50 pounds of acid phosphate, rock phosphate, or basic slag are added to each ton of manure as it is being made in the stable or before hauling to the field, this deficiency of phosphorus is overcome, and a better form of fertilizer can scarcely be found. At least 8 tons per acre of this treated manure should be applied at least once in four years.

When barnyard or other rotted manure is not available and plant refuse, such as straw and stubble, is not returned to the soil, the growing of suitable green manure crops is imperative in order to maintain soil fertility and the supply of humus. On comparatively few farms is there enough rotted manure to take the place of green manures altogether, although by returning the plant refuse to the soil, less of the green manure will need to be grown than where no returns are made. By the proper care of plant residues and the use of green manure crops, principally the legumes, fertility can be maintained as cheaply and as effectively as with the use of large amounts of rotted manures only.

EUROPEAN FOULBROOD OF BEES NOT AMERICAN DISEASE—HOW TO FIGHT IT

European foulbrood, a disease of the brood of bees which has caused great losses to American bee' eepers, is often confused with American foulbrood, though it is a distinct disease and requires different methods of treatment. That bee' eepers may become familiar with the symptoms and measures for control of European foulbrood, the United States Department of Agriculture has just published Farmers' Bulletin 975, "The Control of European Foulbrood."

When strong colonies headed by vigorous queens of resistant stock are present, this malady will usually make little, if any, headway, according to the bulletin. If the disease appears because of an absence of some of these precautions certain remedial measures, described in the bulletin, should be put into practice.

Symptoms of European foulbrood are variable, color being perhaps the most constant symptom. The earliest indications of the disease are a slight yellow or gray discoloration, and the uneasy movement of the larva in the cell. As the decay of the infected cells proceeds the color changes to a decided yellow or gray. A symptom of the greatest importance is the fact that the disease attacks drone and queen larvæ nearly as quickly as those of the workers.

The disease is very infectious at times, but it weakens rather than kills the colonies. If the colony is strong it can usually withstand an attack of European foulbrood, and will clean up the diseased cells. But where the disease is persistent, and the bees are not able to ward it off, the bee' eeper should remove the queen and strengthen the colony by combining the bees from two hives, and after all trace of disease has disappeared give the colony a young vigorous Italian queen of resistant stock. A queen whose colony becomes badly infected is rarely of any value and should be killed.

Further details for the prevention and eradication of European foulbrood are contained in the bulletin referred to, a copy of which can be obtained so long as the supply lasts by applying to the United States Department of Agriculture, Washington, D. C.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 17, 1918:

Velvet Beans. Farmers' Bulletin 966.

Cooling Milk and Cream on the Farm. Farmers' Bulletin 976.

Miscellaneous Confiners of the Rocky Mountain Region. Department Bulletin 680.

Attracting Birds to Public and Semipublic Reservations. Department Bulletin 715.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Good Prices Must Carry Farmer Over Years When Bad Luck Hits

The farmer's crop usually has a conflict with enemies. It may be drought, or excessive rainfall, or temperature, or insects, or bacteria, or mold, or sun spots. There is no other business that has such an array of formidable opponents.

Consumers must reimburse the farmer for this loss, or he will become insolvent and agriculture must cease. In the case of corn, for instance, there are always annual variations from the average yield per acre for a period of years, and often there is a sharp upward or downward turn from one year to the next. In 1901, memorable in corn history, a protracted drought in the corn belt reduced the yield per acre for the United States to 16.7 bushels, or to about two-thirds of the usual yield, but such a yield was somewhat exceeded the following year.

Corn production was almost impossible in Kansas in 1913, when the nominal yield per acre was only 3.2 bushels, although the average of the 10 years ending with 1917 is 17.5 bushels and the production now and then in individual years is more than 20 bushels and reached 31 bushels in 1915. In Illinois in 1913 corn yield per acre fell 20 per cent below the average of the 10 years mentioned and 32 per cent below the yield per acre of the preceding year. During the last 10 years, the corn yield per acre in the great corn state of Iowa has ranged from 30 to 43 bushels, a difference between extremes of 13 bushels, or 43 and 30 per cent, respectively, of the extremes and 37 per cent of the average yield of 10 years.

As a crop raiser, the farmer is a gambler against the forces and living things of nature, and if at times he loses, at other times he must win, and in the long run the prices of the products that he sells must be high enough to put him "ahead of the game."

The local creameryman, because of his nearness to the source of supply and his contact with the producer, is in position to do a big work in the matter of food conservation by converting skim milk and buttermilk into human-food products.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — SEPTEMBER 11, 1918 — No. 6

PRESIDENT PUTS 1919 WHEAT AT SAME PRICE AS THIS YEAR

Government Guaranties Given for Production of Bread Grain

Chief Executive to Name in Spring a Commission on Farming Costs—Increase Only to Farmers Who Have Marketed Crop.

The following proclamation by the President of the United States was made public September 2:

"Whereas, under and by virtue of an act of Congress entitled 'An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel,' approved by the President on the tenth day of August, one thousand nine hundred and seventeen, it is provided among other things as follows:

Quotes from Food Control Act

"'SEC. 14. That whenever the President shall find that an emergency exists requiring stimulation of the production of wheat and that it is essential that the producers of wheat, produced within the United States, shall have the benefits of the guaranty provided for in this section, he is authorized, from time to time, seasonably and as far in advance of seeding time as practicable, to determine and fix and to give public notice of what, under specified conditions, is a reasonable guaranteed price for wheat, in order to assure such producers a reasonable profit. The President shall thereupon fix such guaranteed price for each of the official grain standards for wheat as established under the United States Grain Standards Act approved August eleventh, nineteen hundred and sixteen. The President shall from time to time establish and promulgate such regulations as he shall deem wise in connection with such guaranteed prices, and in particular governing conditions of delivery and payment; and differences in price for the several standard grades in the principal primary markets of the United States adopting number one northern spring or its equivalent at the principal interior primary markets as the basis. Thereupon, the Government of the United States hereby guarantees every producer of wheat produced within the United States that, upon compliance by him with the regulations prescribed, he shall receive for any wheat produced in reliance upon this guarantee within the period, not exceeding eighteen months, prescribed in the notice, a price not less than the guaranteed price therefor as fixed pursuant to this section. In such regulations the President shall prescribe the terms and conditions upon which any such producer shall be entitled to the benefits of such guaranty.' Now therefore, I, Woodrow Wilson, President of the United States, by virtue of the powers conferred upon me by said act of Congress, and especially by section 14 thereof, do hereby find that an emergency exists requiring stimulation of the production of wheat, and that it is essential that the producers of wheat produced within the United States shall have the benefits of the guarantee provided for in said section; and, in order to make effective the guarantee by Congress for the crop of nineteen hundred and nineteen and to assure such producer a reasonable profit, I do hereby determine and fix, and give public notice of reasonable guaranteed prices for No. 1 Northern Spring wheat and its equivalents at the respective principal primary markets as follows, to wit:

> **IF "Food will win the war," it has to be produced first, and that is the Farmer's Big Job.**

"New York, N. Y., two dollars and thirty-nine and a half cents ($2.39½) per bushel.

"Philadelphia, Pa., two dollars and thirty-nine cents ($2.39) per bushel.

"Baltimore, Md., two dollars and thirty-eight and three-quarters cents ($2.38¾) per bushel.

"Newport News, Va., two dollars and thirty-eight and three-quarter cents ($2.38¾) per bushel.

"Duluth, Minn., two dollars and twenty-two and one-half cents ($2.22½) per bushel.

"Minneapolis, Minn., two dollars and twenty-one and one-half cents ($2.21½) per bushel.

Continued on page 4.)

HOME CANNING ARMY LIKELY TO SET A RECORD THIS YEAR

Signs Indicate Success of National Drive For 1,500,000,000 Quarts

Many Demonstration Agents and Club Leaders Engaged in Campaign—Community Kitchens Established in Various States

The home canning army is going over the top. Every indication points to making the 1,500,000,000-quart goal set for this summer's objective.

Reports from the manufacturers of canning supplies who are conforming to recommendations of the United States Department of Agriculture, show a considerable increase in the output of equipment that saves time and labor in home canning. A 50 per cent increase is indicated this year in the number of firms that manufacture canning supplies and an average increase of 25 per cent in the quantity of equipment sold. Makers of standard quality rubber rings report a 300 per cent greater demand for their products since last year, which indicates the housekeepers' growing appreciation of the importance of good rings, and means an ultimate reduction in spoilage.

Use Department Directions

Over 125 business concerns of various kinds have published the Department of Agriculture's instructions on home canning for free distribution to their customers and employees. The directions have also been translated into 10 different languages by agencies outside the department, and are reaching the foreign-speaking families in nearly every State in the Union. Community canning kitchens are springing up rapidly to handle the large quantities of products from the war gardens.

A force of expert home canners numbering more than 3,000 home demonstration agents and leaders of boys' and girls' clubs backed up by many thousand volunteer workers are helping to "put across" the big canning drive. The United States Department of Agriculture and the State agricultural col-

leges are pushing the work to the limit, and both rural and city organizations and institutions are furthering the campaign in every way.

The demand for demonstrations of home canning has never been so great. Every State agricultural college has put out home canning demonstrators in addition to the permanent extension forces in the State.

Community Kitchens at Work

New York, Massachusetts, and Connecticut have the record for community canning kitchens with a large number already at work and others being opened constantly—there are over 100 in New York alone. In the South 78 of the 87 cities organized for home demonstration work have established community kitchens which include canning as a large part of their summer work, and in the rural districts hundreds of these canning centers are being opened to handle the summer's products. Arizona has a number of cooperative community canning and drying centers; Delaware, Idaho, Indiana, Iowa, and Ohio all report considerable new community work organized. In Michigan 20 canning centers are now in operation, and plans are under way for establishing others. And so on, in practically every State in the Union some canning is being undertaken in a big way. The final count at the end of the season will show how far these community enterprises will contribute to the year's record.

VOLUNTEERS HELP GET RELIEF

Eighty volunteer workers of Hill County, Mont., one of the drought-stricken sections of that State, drove a nail in the Kaiser's coffin through the medium of recent war work which they performed. The local drought situation was critical. Facts and figures had to be compiled on hurry-up order for submission to the authorities at Washington in order to obtain relief. Clerks, stenographers, and business men responded to the call of the county agent for help. During the evening a dozen adding machines clicked like the crackle of musketry. The rush order job was not completed until more than half the night had elapsed. Such a spirit of cooperation, says the United States Department of Agriculture, daily is weaving more closely the warp and woof of Americanism.

Stable manure is one of the best fertilizers for wheat growing. It is the best practice to apply this on land to be planted to corn or some other cultivated crop. Wheat is not so likely to winterkill on fertile land as on poor land.

Federal Approval Is Now Required for Practically All Highway Construction

The United States Highways Council recently made public its regulations, effective September 10, governing highway and street work during the period of the war. Federal approval is required for practically all highway construction.

"No manufacturer," the council's announcement says, "will furnish any road-building matorial until the project has been approved by the United States Highways Council."

The proposed work that should be first submitted to the United States Highways Council through the appropriate State highway department is defined as follows:

"All proposed highway, street, culvert and bridge construction, reconstruction, and maintenance involving (*a*) the issuance of bonds; (*b*) the use of rail or water transportation; (*c*) the use of coal or oil as fuel; (*d*) the use of cement, brick, asphalt, oil, tar, crushed stone, or steel (also sand and gravel where shortage exists) as highway material."

The council urges that new highway and street construction be confined to most essential needs, and announces that it will give first consideration to the maintenance of highways already completed. Reconstruction is to be favorably considered only where it is clear that maintenance is no longer possible except at prohibitive cost.

Military Roads First

New construction, it is announced, will be given consideration by the council in the following order:

First, highways and streets of military value, used regularly for the transportation of military supplies in considerable quantity, for the movement as an established practice of Army truck trains, or essential to the efficient operation of a military cantonment, post, or plant; second, highways and streets of national economic value, serving directly to promote the national welfare and not merely local welfare; third, unfinished contracts involving contractural obligations (incurred prior to Apr. 5, 1918, where bond issue is involved) which may not be disturbed without serious consequences; fourth, streets and highways which although not of national economic importance, are of extreme local importance and the construction of which has progressed to such a point that serious hardship would be caused if their construction or completion should be postponed.

Plans Program for 1919

The council is soon to begin, in cooperation with the Bureau of Public Roads of the United States Department of Agriculture and the State highway departments, preparation of a program of road and street construction, reconstruction, and maintenance throughout the United States for the working season of 1919.

The purpose is to approximate the character and amount of work deemed essential for 1919, with the amount and character of financing and materials involved, and the probable demand on rail and water transportation and labor supply. The preparation of the program in each State is to be in charge of the State highway department.

The United States Highways Council is composed of representatives from the Department of Agriculture, the War Department, the Railroad Administration, the War Industries Board, and the Fuel Administration. Logan Waller Page, director of the Bureau of Public Roads, is chairman of the council.

DEAD ANIMALS MAY SPREAD DISEASE; BURN OR BURY CARCASSES AT ONCE

The practice of allowing the carcasses of animals to lie about on the farm premises is one that is at all times to be discouraged.

Through this practice and through the improper disposal of dead animals, many outbreaks of infectious and contagious diseases have had their origin, according to the veterinarians of the U. S. Department of Agriculture. Regardless of whether an animal dies as the result of injury or of disease that may be transmitted to other live stock, it is a good precautionary measure to burn or bury deep the carcass as soon as the animal dies.

Keep Away Carrion Carriers

Even should an animal die from injury or a noninfectious disease, if left exposed on any portion of the farm, it will attract such carrion carriers as crows, buzzards, and stray dogs, and may be the means of bringing on the premises the infection of hog cholera or other diseases. When an animal is found dead or dying it is a good practice to call a veterinarian and ascertain positively whether a contagious disease is present. If death results from injury or a noninfectious disease, the hide should be removed if it is of value.

The best way to dispose of dead animals is by burning, but where firewood is scarce deep burial and a liberal use of quicklime is sufficient, provided the place is not near

a drain and is not likely to be disturbed. Unless it is known that an animal's death was accidental, it is always well to suspect the presence of a contagious disease. Therefore, it is always in order to make liberal use of lime in the grave and to disinfect the ground where the animal died and over which it was dragged. Carcasses should be buried at least 4 feet below the surface and the ground over them well tamped. Dogs or animals sometimes dig up portions of carcasses that are not buried deep, and in that way may spread infection in the neighborhood.

Burning Is Recommended

Where fuel is available burning is recommended. In the case of a dead cow or other large animal the carcass should be cut into small portions, quarters at least, and placed on some elevated structure, such as a pile of logs or stones, or an old iron wheel. Space enough should be allowed under the carcass to admit pieces of wood of considerable size. Care should be taken to do the burning at a distance from buildings. The same method of procedure applies to the burning of dead hogs, except that owing to their smaller size it is not necessary to quarter them. A few slashes over the sides and back, in order to expose the fat to the action of the flames, will hasten the process of destruction.

Waste May Be Saved

During the present period of emergency it is well to save and utilize all waste material so far as possible. Where there are facilities for rendering carcasses without danger of infection, dead animals may be rendered so that the fats and oils may be utilized for commercial purposes and for the manufacture of ammunition. However, the movement of dead carcasses should not be undertaken without the sanction and supervision of the proper authorities. There would be no advantage in saving the grease or other by-products if the promiscuous handling of dead animals without proper precautions should result in creating new centers of infectious or contagious diseases and destroying additional live stock.

About 3¾ bushels of potatoes per capita were consumed yearly for all purposes in this country during the 10 years preceding the war. The rate per family is almost 17 bushels. About 10 per cent of the consumption is for seed and starch, mostly for seed.

Home storage is of importance at all times, but especially so if the price of suitable containers for us in canning and drying is high. Crops of suitable sorts that mature at a season when they can be preserved by storing should be kept in a natural condition instead of being canned or dried.

War Does Not Affect Weather Here Or Elsewhere; Observations Combat Theory

"There is nothing in it," says the United States Weather Bureau to repeated inquiries as to whether the war affects rainfall or any other weather conditions. There is a popular fallacy that concussions, explosions, and the liberation of gases in the European conflicts is having an effect on the weather, not only over the battlefields, but elsewhere on the globe; but it is only a fallacy, say the weather specialists of the United States Department of Agriculture, even though it has existed almost since the beginning of historic times. Before gunpowder was used, the ancients had an idea that battles produced rainfall, which was caused by the clash of swords and the sweat of the fighters.

Later, the same theory was transferred to the noise produced by musketry and artillery; later still, to dust particles and smoke from burning powder, upon which the moisture in the air was supposed to be condensed and to fall as rain, and now to the gases freed by explosions and liberated in the new chemical warfare.

These theories are not combated merely by other theories, but by actual observations made officially by several of the belligerent governments, and the net result of these careful observations is to refute the idea of any effect of war on weather.

While the notion of this effect has been repeatedly exposed in scientific journals, the general press has from time to time printed articles in which the idea of a connection between battle and rainfall has been brought forward. For this reason the weather officials feel that the following facts may be timely and interesting.

Real Cause of Rainfall

The real cause of rainfall is the cooling of the air by the vertical rising of heated air currents, and the incoming of cooler currents to take their places. All weather conditions depend ultimately for their origin on the heating and cooling of the atmosphere. All the powder that could be reasonably expended in any battle, even by millions of men engaged, would not be enough to produce any appreciable change in temperature throughout any considerable section of the atmosphere over the battle area.

Some have thought that the jarring effect of concussions joggles together the moisture particles in the air, just as a sharp tap on a window pane will start a descent of larger drops from many small ones made by a mist or drizzle. A sharp downpour of rain following immediately after a heavy crash of thunder is supposed to be an example of the same cause and effect. This theory was partly back of the "rain-making" attempts formerly tried in Kansas, Texas, and elsewhere to break droughts by a "bombardment of the skies."

The weather specialists point out that in all such cases, even when rain has followed such bombardments, the moisture was there and was due to fall anyhow without man's intervention and that in the few cases where rain has fallen it has been a mere coincidence, the rain being due to natural causes, and the drought was broken because it was time that it would have been broken in the natural course of events. In short, moisture would fall when it was present; if it were not present, all the concussions that could be devised by man could not make rain.

Result of Actual Observations

Actual observations by French, British, and American observers have failed to establish any relationship between storming the enemy and storms from the skies. Careful studies show that rainfall and battles do not coincide enough to give the basis for a theory of cause and effect. The great battles in France in the spring of 1917 failed to interrupt the long spell of fair weather that accompanied them. Furthermore, an examination recently made of the records of local distribution of rainfall over England during the first 22 months of the war made by the British meteorological office resulted in strengthening the evidence against the theory.

Old Theories Die Hard

The director of the French meteorological bureau, M. Ango, practically says that the wish is father to the thought and that an idea that is deep-seated and of long duration dies hard. The survival of the fallacy is due to the suggestion constantly given by an instictive belief. Possessed of such a belief, one is inclined to note only the favorable coincidences, he says, ignoring the many circumstances that do not bear out the theory, and thus to become more and more confirmed in the opinion.

It has been maintained that recent severe droughts in the western part of this country have been due to excessive rainfalls over European battlefields. The idea was advanced that so much rain has fallen in France that there was not enough to go around, so the folks in other quarters of the globe had to do without. The Weather Bureau says that all such theories are in the same category and all are equally unworthy of belief.

If permanent facilities are not available late root crops can be kept in outdoor pits or banks, requiring no cash outlay except for labor.

"COTTON RUST" IS CAUSED BY TINY RED SPIDERS' RAVAGES

Timely Spraying of Plants Will Prevent Serious Injury to Crop

Specialists Tell How to Control Insects by Use of Solution—Infestation Spreads Rapidly Over Fields from Single Weed

Tiny red spiders or mites are responsible for the so-called rust of cotton which has made its appearance in many cotton fields this year and is causing serious injury.

Reports on the appearance of rust have reached the United States Department of Agriculture from many sections of the South, particularly from Georgia, North and South Carolina, Tennessee, and Missouri. The seriousness of this pest, specialists of the department say, is shown by the fact that during a single season the infestation may spread from a single weed over an entire cotton field, causing the leaves to drop from the plants and resulting in their death. Red spiders can be controlled, the specialists add, by timely spraying with a solution of either potassium sulphid or kerosene emulsion.

How to Make Solution

The potassium sulphid solution is made by mixing one ounce of the chemical to two gallons of water. Kerosene emulsion is made by combining one gallon of kerosene and one-fourth pound of laundry soap, or one pound of whale oil (fish oil) soap, or one pint of soft soap with half a gallon of water. If laundry soap is used it should be shaved and dissolved in boiling water and then poured (away from the fire) while still boiling hot, into the kerosene. The mixture should be churned rapidly for 8 or 10 minutes or until it becomes a thick cream, using a spray pump, the liquid being pumped back into itself in a strong stream. This solution, which is the stock emulsion, should be used against the mite in the proportion of one part kerosene to six parts water, although against other insect pests it is diluted to 1 part stock solution and 15 parts water. To make spraying effective the under sides of the leaves must be reached, as this is where the mites are usually found.

Rust appears first as a blood-red spot on the upper surface of the leaves. Myriads of mites, which are too small to be noticed easily by the naked eye, spread rapidly over the leaves, sucking the sap. The entire leaf turns red or rusty yellow, becomes folded, then turns brown and dry and finally drops from the plant. The lower leaves are usually attacked first, then the injury spreads upward until often only the bare stalk and one or two terminal leaves remain, and in such cases the plants almost always die.

Information on the red spider and its control is given in Farmers' Bulletin 831, which may be had on application to the Bureau of Entomology, United States Department of Agriculture, Washington, D. C.

PRESIDENT PUTS 1919 WHEAT AT SAME PRICE AS THIS YEAR

(*Continued from page 1.*)

"Chicago, Ill., two dollars and twenty-six cents ($2.26) per bushel.

"St. Louis, Mo., two dollars and twenty-four cents ($2.24) per bushel.

"Kansas City, Mo., two dollars and eighteen cents ($2.18) per bushel.

"Omaha, Nebr., two dollars and eighteen cents ($2.18) per bushel.

"New Orleans, La., two dollars and twenty-eight cents ($2.28) per bushel.

"Galveston, Tex., two dollars and twenty-eight cents ($2.28) per bushel.

"Tacoma, Wash., two dollars and twenty cents ($2.20) per bushel.

"Seattle, Wash., two dollars and twenty cents ($2.20) per bushel.

"Portland, Oreg., two dollars and twenty cents ($2.20) per bushel.

"Astoria, Oreg., two dollars and twenty cents ($2.20) per bushel.

"San Francisco, Cal., two dollars and twenty cents ($2.20) per bushel.

"Los Angeles, Cal., two dollars and twenty cents ($2.20) per bushel.

"Salt Lake City, Utah, two dollars ($2) per bushel.

"Great Falls, Mont., two dollars ($2) per bushel.

"Pocatello, Idaho, two dollars ($2) per bushel.

"Spokane, Wash., two dollars ($2) per bushel.

And that the guaranteed price for the other grades established under the United States grain standards act approved August 11, 1916, based on said price for No. 1 Northern Spring wheat at the respective principal primary markets of the United States above mentioned, will assure the producers of wheat produced within the United States a reasonable profit; the guaranteed prices in the principal primary markets above mentioned being fixed by adopting No. 1 Northern Spring wheat or its equivalents at the principal interior markets as the basis.

"For the purposes of such guaranty only, I hereby fix the guaranteed prices at the respective principal primary markets above mentioned for the following grades of wheat, to wit: No. 1 Northern Spring, No. 1 Hard Winter, No. 1 Red Winter, No. 1 Durum, No. 1 Hard White. The guaranteed prices at the respective principal primary markets aforesaid of all other grades of wheat established under the United States grain standards act approved August 11, 1916, shall be based on the above guaranteed prices and bear just relation thereto.

"The sums thus determined and fixed are guaranteed by the Government of the United States, at the respective principal primary markets of the United States above mentioned, to every producer of wheat of any grade so established under the United States grain standards act, upon the condition that said wheat is harvested in the United States during the year 1919, and offered for sale before the 1st day of June, 1920, to such agent or employee of the United States, or other person as may be hereafter designated, at any one of the above-mentioned cities, which are hereby declared to be the principal primary markets of the United States, and provided that such producer complies with all regulations which may be hereafter promulgated in regard to said guaranty by the President of the United States.

"In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

(SEAL.) "Done in the District of Columbia, this second day of September, in the year of Our Lord one thousand nine hundred and eighteen, and of the Independence of of the United States of America the one hundred and forty-third.

"WOODROW WILSON."

In connection with the proclamation the following memorandum was issued:

Memorandum.

"SEPTEMBER 2, 1918.

"In issuing to-day the Government's guarantee of the same price for the 1919 wheat crop that was guaranteed for the 1918 crop, I wish it to be understood that in the spring of 1919 I will appoint a disinterested commission who will secure for me the facts by that time disclosed as to the increased cost of farm labor and supplies, using the three-year prewar average prices of wheat, of labor, and of supply costs as a basis, and that from this information I shall determine whether there should be an increase in price above the present level, and, if so, what advance, in order to maintain for the farmer a good return. Should it then appear that an increase is deserved over the present guarantee, however, it will be applied only to those who have by next harvest already marketed their 1918 wheat.

"It is the desire and intention of all departments of the Administration to give to the wheat grower a fair and stimulative return in order that the present acreage in wheat may be maintained.

"I find a great conflict of opinion among various sections of the country as to the

price that should be named as a minimum guarantee. It must be obvious to all, however, that the factors which will make for increased or decreased cost of production of next year's harvest can not be determined until the near approach to the harvest.

"In giving a guaranteed price for wheat one year in advance (the only industry guaranteed by the Government), there is involved a considerable national risk. If there should be peace or increased shipping available before the middle of 1920, Europe will naturally supply itself from the large stores of much cheaper wheat now in the Southern Hemisphere; and therefore the Government is undertaking a risk which might in such an event result in a national loss of as much as $500,000,000 through an unsalable surplus; or, in any event, in maintaining a high level of price to our own people for a long period subsequent to freedom in the world's markets.

"Despite this, the desirability of assuring a supply to the world of prime breadstuffs by insuring the farmer against the fluctuations in prices that would result from the uncertainties of the present situation and from the speculation those uncertainties entail seems to me to make the continuation of the guarantee for another year desirable. On the other hand, it is clear that before increasing this liability by large sums with the risks set forth above, and before increasing the burden of the consumer, the matter should be subjected to searching inquiry at the appropriate time—the time when the pertinent facts will be known.

"I feel confident that with this preliminary fixed guarantee and with the assurance that justice will in any event be done to the grower, he will continue the fine patriotic effort by which he has served the country hitherto; that the Government will have acted prudently; and that the consumer will be satisfied that his interests are not unduly sacrificed, but just and exhaustive consideration given to every element of the matter at the proper time.

"WOODROW WILSON."

SAVE DISEASE-FREE SEED

Some very destructive bean diseases, including pod-spot, are carried in the seed; so it is extremely important to observe the general rule that no seed should be saved from diseased plants when saving beans for seed. Never save seed from pods which are not bright and clean.

The owner of a large herd of cows can well afford to own a first-class bull, and the bull association has now made it possible for the owner of a small herd to own a share in a good, well-bred bull.

FOOD AND FARMING

To the extent that the acreage of crops in 1917 was estimated by the Bureau of Crop Estimates, the total was 345,647,190 acres. The same crops in 1909, according to the census, covered 96.2 per cent of the entire crop area, and, if this percentage is approximately good for 1917, the total crop area of that year was 359,625,000 acres, or 16 per cent above the census total.

The variety of spring wheat that is growing most in popularity is Marquis. Durum has second place in gain, although it appears to have a slight advantage over Marquis in yield per acre. Of the total spring-wheat crop in Minnesota, the Marquis variety increased from 3 to 46 per cent from 1914 to 1917; in North Dakota, from 5 to 43 per cent; in South Dakota, from 3 to 43 per cent.

Returns to the Bureau of Crop Estimates indicate that on July 1, 1918, the number of hogs in the United States was 3.3 per cent greater than on July 1, 1917, the number of cattle 3.8 per cent greater, and the number of sheep about 15 per cent greater. These percentages are based on reports of individual holdings on the two dates mentioned from 41,118 farms taken more or less at random throughout the United States and assumed to be representative of all farms.

The Bureau of Crop Estimates estimates that the area planted to sea island and American-Egyptian cotton in 1918 is about 356,000 acres, of which 276,000 acres are sea island and 80,000 acres Egyptian. This compares with 352,000 acres in 1917. There is a heavy decrease in the acreage in the older sea island sections in Georgia and Florida, where the boll weevil is very active, and a corresponding increase in the American-Egyptian acreage in Arizona and California.

No class of live stock is found on every farm in the United States. In 1910 the census found cattle on 83.1 per cent of the farms, milch cows on 80.8 per cent, horses on 73.8 per cent, swine on 68.4 per cent, mules on 29.4 per cent, sheep on 9.6 per cent, and goats on 1.3 per cent. While chickens were kept on 87.7 per cent of the farms of the United States in 1910, other fowls were kept on much smaller fractions of the farms—turkeys on 13.7 per cent of them, geese on 10.4 per cent, ducks on 7.9 per cent, and guineas on 5.3 per cent.

The area of the sugar-cane crop of 1918 in the United States is estimated by the Bureau of Crop Estimates to be 533,880 acres, or 12 per cent above the acreage of 1909, as reported by the census. The estimate is for ribbon cane only, and hence sorghum cane is excluded. Ninety per cent of the total ribbon-cane area is in Louisiana, Mississippi, Alabama, and Georgia. Of this total area about 53 per cent is intended for sugar, while the remainder, 47 per cent, is mostly intended for sirup and for planting part of the next year's crop.

How Iowa's Big Corn Crop Was Made Possible This Season

Last spring a serious seed-corn famine was averted in Iowa by effective county agent work. The seed crop in 1917 was a failure as a result of unfavorable climatic conditions. As Iowa annually devotes approximately 10,000 acres to corn, which necessitates the use of 2,000,000 bushels of seed, and as the demand is limited to native-grown seed, the State had to be combed for an adequate seed supply.

Fortunately Iowa had a county agent in each of its 99 counties and through these men 1,000,000 bushels of good seed from the 1916 crop were located, while, by intensive testing and selection, a similar amount of good germinating seed from the 1917 crop was found. This use of the available seed supply resulted in one of the best stands of corn Iowa ever cultivated.

Two outstanding features of noteworthy significance are prominent in this Iowa seed-corn campaign. Efficient county agent operations prevented a calamity in the leading corn State of the Union and strikingly demonstrates the value of such organizations in farming communities. Furthermore, the nearly disastrous experience of last year should influence each grower to pick, select, and carefully store his seed corn early this fall, in order to insure a surplus supply of high-testing seed for the spring planting.

Turnips will withstand hard frost, but alternate freezing and thawing injures them. Gather, top, and store the roots in banks or pits, or in an outdoor storage cellar. Do not place them in the storage room in the basement of the dwelling as they give off odors that penetrate throughout the house.

Apples may be kept in the storage room in the basement of the dwelling, in outdoor storage cellars, and in banks or pits. Conditions suitable for the keeping of potatoes answer fairly well for apples. Under some conditions it will be an advantage to store part of the crop in the cellar and the late-keeping varieties suitable for spring use in outdoor banks or pits.

Corn Silage and Velvet Beans Found to Be Good Feed for Fattening Cattle

Corn silage and velvet beans are said to form a satisfactory ration for fattening steers for market. This is the result of feeding experiments just completed at the United States Department of Agriculture farm at Beltsville, Md.

Other points brought out by the tests indicate that velvet beans compare favorably with cottonseed meal, producing profitable gains when the beans are the sole concentrate of the ration; that it is more profitable to feed soaked beans than it is to grind them; and that more beans will be eaten if soaked before they are fed than if they are fed dry.

Objects of Experiment

The objects of the experiment were to compare velvet beans in three forms—whole, ground, and soaked—with cottonseed meal as supplements to corn silage and dry roughages, and to determine the most economical forms in which velvet beans might be fed in fattening cattle for market. Incidentally it was hoped that the tests would show possibilities of grain conservation in the production of beef as a war-time measure.

The cattle used in the tests were 40 good 2-year-old steers in which short-horn blood predominated. They were bought last February in the East St. Louis market, where they were selected out of shipments from Illinois and Missouri, and were in fair stocker condition when placed on the experimental feeding rations. They were divided into four lots of 10 steers each, the lots selected so that they would be as nearly equal as possible in weight, quality, and condition. They were fed for 112 days.

Rations Fed to the Lots

The average daily ration consumed by lot 1 was 4.39 pounds of cottonseed meal, 33.72 pounds of corn silage, and 4.20 pounds of dry roughage. This lot made an average daily gain of 2.30 pounds, at a cost of about 12 cents a pound, or $11.97 a hundred.

Lot 2 consumed an average daily ration of 7.59 pounds of dry, whole velvet beans, 26.85 pounds of corn silage, and 4.15 pounds of dry roughage. This lot made an average daily gain of 1.73 pounds a head, at a cost of about 14 cents a pound, or $14.12 a hundred.

Lot 3 ate each day an average of 5.87 pounds of velvet-bean meal, 26.92 pounds of corn silage, and 4.10 pounds of dry roughage. The animals made an average daily gain of 1.54 pounds at a cost of about 14 cents a pound, or $14.04 a hundred.

Lot 4 consumed an average daily ration of 9.62 pounds of soaked, whole velvet beans, 23.40 pounds of corn silage, and 3.72 pounds of dry roughage. This lot made an average daily gain of 1.99 pounds a head, at a cost of about 13 cents a pound, or $13.19 a hundred.

The dry roughage was the same for all lots and consisted of corn stover for the first 28-day period, and wheat straw for the last three 28-day periods.

The feeds were at current standard prices and the charge against each kind included the actual cost of laying it down at the farm.

What the Carcasses Showed

The examination of the carcasses in the cooler at Baltimore showed that lots 1 and 4 were nearly alike as to quality. However, meat experts there were of the opinion that if any difference existed it was in favor of the carcasses in lot 4. Lot 2 was better than lot 3 because of the greater covering of fat. The average dressed weights, according to the Baltimore basis gave the following percentages of dressed to live weights: Lot 1, 54.16; lot 2, 54.87; lot 3, 54.01; lot 4, 55.77. The steers were sold on the farm by farm weights at 2¾ cents a pound more than they cost in East St. Louis.

PREPARE SEED BED FOR WHEAT EARLY

The early preparation of the seed bed for wheat is important. In general it saves moisture, liberates nitrogen, and results in a firm seed bed by seeding time, thus increasing yields and distributing labor as well.

The successful storage of vegetables is not at all difficult; in fact, good storage facilities already exist in most homes, it being only necessary to make use of the cellar, the attic, the large closet, or other parts of the dwelling, depending upon the character of the product to be stored.

DRIED EGGS, PEANUT BUTTER, DRIED AND CONDENSED MILK SHOW GAINS

Stocks of dairy and related products in commercial channels other than retail stocks, as reported to the United States Department of Agriculture in the comprehensive food survey for July 1, 1918, were as follows: Butter, 87,928,955 pounds; cheese, 85,656,949 pounds; eggs, 213,050,498 dozen; dried eggs, 9,452,913 pounds; dried milk, 12,384,444 pounds; margarine, 8,834,352 pounds; peanut butter, 6,727,220 pounds; condensed milk, 142,712,943 pounds; and evaporated milk, 203,177,023 pounds.

A preliminary report published July 29, 1918, gave the stocks of condensed milk held by condenseries and wholesale grocers as 40,928,367 pounds. The figures now made available include, in addition to some late returns, the stocks held by various other classes of business firms, notably 60,388,202 pounds held by storage concerns. The figures for evaporated milk likewise represent returns from additional firms and classes of business not covered by the earlier tabulation.

The figures given above include stocks actually reported as on hand by manufacturers, storage houses, and wholesale dealers and also quantities reported as in transit from these concerns. The stocks of retail dealers, as reported for July 1, 1918, are not included, since these are still in process of being tabulated. In the similar survey by the department on January 1, 1918, the retail stocks constituted the following percentages of the total commercial stocks of the commodities here considered: Butter, 10.8 per cent; cheese, 12.4 per cent; eggs, 14.7 per cent; margarine, 32.1 per cent; peanut butter, 50.5 per cent; condensed and evaporated milk, 27.2 per cent.

In the case of four of these commodities, namely, butter, cheese, eggs, and margarine, the stocks reported for July 1, 1918, represent only meager increases over the corresponding stocks of July 1, 1917. In the case of the other five commodities more substantial increases were found. The stocks reported for July 1 of the present year represent the following percentages of the stocks on July 1 a year ago: Butter, 102.7 per cent; cheese, 100.3 per cent; eggs, 105.1 per cent; dried eggs, including egg albumen, 244.8 per cent; dried milk, including milk powder, 178.7 per cent; margarine, including oleomargarine, butterine, etc., 107.3 per cent; peanut butter, 112.4 per cent; condensed milk, 178.5 per cent; and evaporated milk, 156.4 per cent.

WHERE TO STORE SEED

Store seed in a dry, well-ventilated room. Cellars are too moist, attics usually are too hot, but a second-story room furnishes the ideal location. Seed can be protected against mice by storing in tin boxes or mouse-proof wooden boxes, or by suspending in cloth bags.

Not only is it possible to reduce the cost of the menu materially by growing and storing vegetables for home use, but the satisfaction of having a supply of fresh vegetables near at hand, so that, regardless of markets and winter temperatures, the list may be varied, is something that cannot be measured in dollars and cents.

MORE MEAT ON STOCK, MORE FERTILITY, FROM SOY BEANS

Meal Provides Concentrate Useful in Ration for Feeding Animals

Leguminous Plants Strenghten Soil, Especially Valuable On Poor Land—Grinding Mills Will Reduce Beans to Proper Form

Soy-bean meal is a source of home-grown protein which should interest every stockman, says the United States Department of Agriculture, particularly when concentrates rich in protein are high in price. Several varieties of soy beans have been adapted and acclimated to every section of the country so that the crop can be profitably produced in every State now engaged in live-stock husbandry. The soy bean is the one crop which provides a practical way for the farm production of the grain protein which is needed for feed for dairy cows, beef animals, sheep, swine, and poultry.

On impoverished lands in the South soy beans yield from 10 to 15 bushels of grain to the acre and in so doing the crop also improves the fertility of the soil, because of the leguminous nature of the plants. There are a number of handpower and gasoline grinding mills of standard make now on the market which can be purchased at from $10 to $50 each and will reduce soy beans to a palatable meal form. A gasoline engine to operate one of these mills will cost from $35 to $75 or more, dependent on the make, size, and quality.

High Oil Content

Due to the relatively high oil content of soy beans, it is advisable to grind a mixture of three parts of corn to one part of soy beans as in this way a practically balanced grain ration is supplied while difficulties due to the gumming up of the mill are avoided. Soy-bean meal contains from 45 to 48 per cent of protein as compared with 38 to 41 per cent of protein in the common varieties of cottonseed meal. It is essential to feed smaller amounts of soy-bean meal on account of its greater content of protein and this naturally lowers the cost of production, as during normal periods soy-bean meal sells at practically the same prices as the best grades of cottonseed meal. With a more extensive production of the soy bean crop the price of the meal probably will decline.

Another reason for the feeding of smaller amounts of soy-bean meal as compared with cottonseed meal results from the laxative character of the former material. Stockmen who have used it for several years assert that soy-bean meal must be used with caution at first so as gradually to accustom the farm animals to the new feed while care must be exercised, because of its laxative nature, never to overfeed the meal. They also report that the feeding of this meal in the ration markedly improves the coat and general condition of the animals.

All Home-Grown Feed

Where alfalfa and soy beans can be raised on the live-stock farm there is no need for purchasing any feed if corn, rye, and oats also are grown in amount adequate to supply the year-around requirements of all the live stock. These materials will develop and fatten the farm animals when used in the proper mixture and will favor a practical rotation and the improvement of soil fertility while they also make for the annual money-cropping of animal products rather than grain and hay.

The soy bean, the most promising and profitable forage and grain crop which has been widely popularized in the United States during the last decade, merits a trial on every live-stock farm and introduction into the permanent cropping schedule wherever the results indicate the wisdom of such procedure.

HOUSEWIVES ASKED TO DEMAND MEAT FROM LIGHTWEIGHT CATTLE

The Food Administration issues the following:

Housewives who have been accustomed to purchase beef from heavier weight carcasses should now be able to buy at much lower prices than the average which has ruled during the past year if they observe the Food Administration's request to demand meat from cattle which dress below 475 pounds per head. The Food Administration declared that the lightweight cattle are now moving rapidly to market, the producers in the Southwest endeavoring to dispose of them before they suffer further from the effects of long-continued drought.

Sales Prices of Steers

Heavy steers are being sold in eastern meat centers for $26 to $27 per 100 pounds; good steers, somewhat lighter in weight, at $24 to $25; medium-weight steers, at $19 to $21, and lightweight steers at $14 to $18.

While prices are not uniform throughout the country, it will be found that this ratio will rule in practically every market. Meat markets which normally cut $26 beef can obviously give their patrons the benefit of such a wide difference in first cost. Selling light cuts, bought at $14 to $18, there should be a material reduction below the selling price of meat bought at $26.

How Market Will Be Helped

The Food Administration believes that its request for consumption of the light cattle will not only do much to relieve the producers who are affected by severe droughts, but should be followed by a general downward trend in retail purchasing prices—the demand turning to the cattle which are now in abundance and relieving the strain on the market for heavier beef, which is still badly needed for the military forces and for export to the civil populations of the allied countries. The market should naturally follow in its price reductions the difference in first cost, providing a reasonably low price to those who utilize the lightweight cattle. They are wholesome, of good quality, and before being marketed have passed Government inspection.

FALL PLOWING HELPS BRING BIG YIELDS OF SPRING WHEAT

Immediately following the thrashing of wheat and throughout the fall, farmers in the spring-wheat section are confronted with the task of plowing ground for seeding next year's crop. Experience has shown that nothing will aid so much in securing good yields of spring wheat as plowing the ground the previous fall, and specialists of the United States Department of Agriculture are urging farmers in the spring-wheat belt not to overlook this important factor. Preparations should be made now to get land ready to produce big yields in 1919.

MORE EFFECTIVE MAN POWER

Man power per acre is much more effective in the agricultural production of this country than it is in any European country. In France, Germany, Hungary, and the United Kingdom, before the war, there was one person engaged in agriculture to about 7 acres in cultivation; in Belgium and Italy, to about 5 acres; and in the United States, to 27 acres. In the foreign countries, cultivation is more intensive and the fields are often small and scattered; in this country, large and contiguous fields permit the use of machinery, draft animals, and tractors. Production per acre is comparatively low in this country, but the product per worker is much greater than it is in the other countries named.

Some make a practice of pasturing new land with goats for a few years. After the goats have killed most of the small growth and grass has begun to come in, dairy cattle are substituted. If goats are used in subduing the sprouts, it is unnecessary to cut all of the small growth.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Safeguarding Milk Supply of Naval Zones.

The quality of milk which goes to the Army and Navy bases, navy yard and naval hospitals in and around Norfolk and Newport News, Va., is being carefully guarded by market milk specialists of the Dairy Division, United States Department of Agriculture. The milk is being transported in refrigerator cars from a distance of 260 miles from northern Virginia points to relieve the shortage at the congested coast cities. Accurate records of the temperature are made by the use of six recording thermometers, this being the pioneer use of such instruments in car-lot shipments of milk in refrigerator cars. As a result, the amount of ice in the cars necessary for maintaining the proper temperature of milk en route has been definitely determined. The source of supply and the method of handling the milk from the time it is produced until it is used is being carefully watched by the specialists, in order that only milk which is safe will be used by the soldiers, sailors, and war workers.

750 Farm Bureaus Organized for War Farming.

Seven hundred and fifty farm-bureau organizations, with a membership of 287,808 of the most practical farmers of their counties, are now organized in the 33 Northern and Western States to help direct county-agent work and to develop the war program. A marked expansion of 500 additional counties, with an increased membership of 191,670, is representative of the work accomplished during the year ending June 30, 1918. The farmers themselves are now planning a large part of the war work conducted by the county agents of the United States Department of Agriculture.

Live-Stock Breeders Pledge Maximum Production.

"To aid and support the Government in winning the war, and to exert our best efforts for maximum production of crops and live stock to this end," was the resolution of the Gage County Live-Stock Association at its annual meeting in Beatrice, Nebr. The action of this association is one of the many instances which have come to the attention of the United States Department of Agriculture showing how farmers and stock raisers of the country feel an obligation to do their part. The resolution of these men is significant as an indication of their desire to cooperate in the Nation's war program.

Millions of Pounds of Food Saved.

New food-saving records were made in Iowa during June and July by families reporting to the home demonstration agents. The amount of flour saved out of the normal consumption in 41 counties in those two months totaled 13,721,465 pounds, with the addition of 103,203 pounds saved in two cities The saving in sugar amounted to 3,646,625 pounds in 40 counties and 200,000 pounds in one city. Many new canning clubs have been organized, 183 of them having been started in 26 counties. That drying has become a popular means of food conservation in the State is indicated by the fact that agents report they are in touch with 35,558 people in 52 counties and 1,260 people in three cities who are drying surplus fruits and vegetables.

Guideposts for War Grain Fields.

War service in the way of greater grain production is uniquely rewarded in Cheshire County, N. H. A signboard is set up in each grain field bearing the slogan: "This farm is growing one or more acres of cereals to help win the war. Cheshire County Farm Bureau Association." The local farm demonstrator has purchased 150 such guideposts for erection on grain fields of the patriotic farmers.

College for Boy and Girl Champions.

That club training creates a desire for greater knowledge in two all-important occupations of America, namely, agriculture and home making, is indicated by the fact that 15 of the 26 last year's champions in boys' and girls' club work in the North and West are to enter colleges of agriculture, to take special courses in farming and in home economics. Boys' and girls' extension work in agriculture and home economics is producing a new crop of champions each year. A sweepstake champion is a boy or girl who makes the highest record of production, profit on investment, quality of food produced, and keeps the best record for a year's time, in the production and food conservation work handled by the United States Department of Agriculture in connection with the State colleges of agriculture. The 26 champions have been members of the boys' and girls' club work an average of three years each, and have been doing the work under the leadership of the cooperative workers in the field. Their spurs have been won by the growing of corn, home gardens, home canning, and conservation of food, the raising of pork and poultry products, the feeding and management of baby-beef and dairy herds.

Women Regulate Cooking for Thrashers.

At a recent township meeting conducted by the home demonstration agent in Marion County, Iowa, women from all parts of the township took up the need for simplifying the cooking for thrashers. It was decided that they served too great a variety of foods, especially sweets, and that as many of the thrashers in that section could go home to supper too much was made of the evening meal. A committee composed of one woman from each school district drew up an agreement which was taken to all farmers' wives in the county. It recommended less elaborate cooking and less variety, and stipulated that the thrashers should go home to supper whenever possible, thus saving waste in preparation and the strength of the women, each of whom must serve dinner for some 30 men during thrashing time.

Extension Schools for Beekeepers.

To encourage the keeping of bees and to increase honey production a series of extension schools for beekeepers is being arranged by State officials of California who are cooperating with two beekeeping specialists of the United States Department of Agriculture. The extension schools will be conducted in various parts of the State during November and December and are especially designed to aid commercial beekeepers.

Window Exhibits for Chautauqua Crowds.

The home demonstration agent of Audubon County, Iowa, made the most of Chautauqua week in Audubon recently, for getting across a food-conservation campaign to the people of the county. With the coopera-

tion of the county agricultural agents, eight town grocers and four girls with home economics training, graphic food exhibits were arranged in many of the town windows to demonstrate the saving of wheat and sugar. Many of the speakers at the Chautauqua helped the campaign materially by emphasizing the matter of food conservation. The agent herself spent a few hours each day in the largest grocery store interesting the people in the need for conservation and distributing recipes to those who had not been reached by the regular food meetings in the county.

Collecting Parasites of Sugar-Cane Insect.

Parasites of the sugar-cane moth borer, which is proving very injurious in the sugar-cane district of Louisiana, are being collected in Cuba by an entomologist of the United States Department of Agriculture. The entomologist, who went to Cuba in July, is stationed at the agricultural experiment station of the Cuba Cane-Sugar Corporation, at Mercedes. Already a number of parasites have been collected and sent to New Orleans for rearing and release on Louisiana plantations.

How Minnesota Live Stock Breeders Work Together.

County agents and farm bureaus in Minnesota have been active in organizing cooperative live stock breeders' associations. One association, recently formed through the efforts of the farm bureau in Mille Lacs County, Minn., to encourage the breeding of high-grade Holstein and Guernsey cattle, is composed of five groups of farmers, each group owning from 50 to 75 cows. Under the cooperative arrangement the sire belonging to the group is kept by a farmer located as centrally as possible and receiving $50 a year as pay for caring for the animal. The cost of maintenance and the original purchase price of the sire is divided equally among the farmers in the group. Interchange of sires between the groups lengthens greatly the period of service of these high-class animals. Reports from Mille Lacs County to the United States Department of Agriculture say that the plan is working well and gives promise of assisting greatly in the development of the live-stock industry.

Hog Extension Men to Meet.

About 20 field specialists in swine husbandry of the United States Department of Agriculture, working in the South, will meet at the Southeastern Hog Show to be held at Atlanta, Ga., October 14 to 19. These men have been called in conference by E. Z. Russell, in charge of the swine extension work of the department, to discuss together their problems and to work out ways of increasing swine production in the Southern States.

Food Saving in Iowa.

Iowa women who have been reached by the county home demonstration agents are reporting interesting food-saving results from the use of substitutes and by self-denial. In Black Hawk County the last year's record shows a saving of 469,000 pounds of wheat, 155,000 pounds of meat, 112,000 pounds of sugar, and 75,000 pounds of fat. In Clinton County in four months the women following the agent's instructions saved 100,000 pounds of wheat, 20,000 pounds of sugar, and 1,000 yards of woolen materials. A canning campaign in Marshall County reached 1,800 women whose reports show an average of 125 quarts of products put up for each home. In the same county 250 farmers are canning their own meat.

County Agents Aid Fruit Growers.

County agents in the New England States have done some notable work in assisting fruit growers during the past few years, according to a horticultural specialist of the United States Department of Agriculture who has just returned from an official trip through that district. Through demonstrations in the management of orchards and talks on fruit growing in interested communities, county agents have shown the benefits to be derived by practicing up-to-date methods. As a result many orchards which have previously returned no revenue have been made to yield good profits. An example is cited of an orchard in Oxford County, Me., which consists of 54 Northern Spy apple trees covering 1.1 acres. The sale of the apples from this orchard has averaged $625 an acre for the last six years. The trees are 25 to 30 years old.

EASY WAY TO HARVEST CORN

Husking corn from standing stalks is one of the biggest jobs where corn is a principal crop. Extra labor, hired by the day or bushel, is usually required. If you have trouble in obtaining enough labor to husk your crop, try to rent a mechanical picker if a machine of a satisfactory type is available. About 7 acres seems to be a fair day's work for one of these machines and its crew of three men and three teams. Two wagons are required—one unloading while the other is being filled. This makes 350 bushels in corn yielding 50 bushels per acre, and it takes four high-class men husking by hand to average this amount throughout the season. Old men or boys who would be able to do only a small amount of work in husking by hand can do just as good and as much work with the machine as higher-class help. The amount of ground covered per day by a mechanical picker will be about the same no matter what the yield; consequently the advantage derived from its use is greater in heavy corn than where the yield is low.

A Better Than Hotel Bed.

An Arizona county agent has converted his automobile into a 24-hour-a-day convenience. During his waking hours he keeps the machine busy in traveling among his farmer clientele: at night he can use the car for sleeping quarters. He has hinged the lean back of the front seat so that it can be let down to complete a comfortable cot with the front and back seats. His ingenuity enables him to cover a larger territory with a minimum of back travel to his home or to other stopping point, while it saves him money in the way of hotel bills. Moreover, it makes him independent of difficulties due to poor hotel accommodations, or due to no accommodations at all.

Department Receives Greetings from Academy of Macon, France

The United States Department of Agriculture recently received a letter which, translated, reads:

"At the monthly meeting of the Academy of Macon, held on Thursday, the 4th of July, 1918, the academy, joining all the Frenchmen who on that anniversary of the Day of Independence send across the ocean sincere greetings to their allies of the new world whose strong armies together with them are defending the sacred cause of right, liberty, and civilization, sends to the Department of Agriculture its brotherly love and most cordial greetings.

"(Signed) THE PRESIDENT.
"THE SECRETARY."

In reply, Secretary of Agriculture Houston sent the following to the president of the Academy of Arts and Science, Macon, France:

"I have received your recent letter and thank you sincerely for transmitting to me the greetings of the Academy of Macon. I deeply appreciate the sentiment which prompted the action of the academy, and hope that you will convey to its members the earnest good wishes of the Department of Agriculture, its officers, and employees."

The miner can not restore the mineral to the mine. With the farmer it is different. The primal forces and atoms of the universe are his. The sun shines and the rain falls and the farmer applies his art and science to inexhaustible resources, ever adding enormously to the country's wealth, capital, credit, and welfare.

COUNTY AGENTS OVERCOME MANY TRYING DIFFICULTIES

Their Work Often Imposes Situations Which Have to Be Met Promptly

Quickness of Thought and Action and Resourcefulness When Unforeseen Circumstances Arise Are Qualifications for Their Task

Human-interest stories come to the Department of Agriculture each day from its workers throughout the country.

Such items, not generally used in Government reports, nor regarded as the equal of statistical records, nevertheless help interpret tabular statments, says the department. They enable the staff members in Washington to read between the lines of formal reports. Even prosaic expense accounts may carry an explanation that tells volumes about the agents' work. Those who check the accounts are supposed to have an eye solely for questions of compliance with fiscal regulations, and are likely to disallow expense items not strictly in accord with established precedent. When they get a bill from a woman home demonstration agent for a high ferriage where no ferry exists, or are asked to pay for a railway handcar, they must know the reason.

Ferriage by Hand

The reasons may come in some such form as this:

"Regarding the item for ferriage I submit the following facts: The train which was to have taken me to the junction point, from which I could have had train service to the little town where a canning demonstration was to be held, was several hours late.

"I had been told by telephone that 200 farm women would be present, many of them coming from long distances, and in all sorts of vehicles, including ox carts; others even on foot. I felt that I could not disappoint this crowd, and tried to arrange for a boat to take me the 4 miles across the tide arm of Blank River instead of the 28 miles I would have had to travel around by rail if the train had been on time. Finally a very small boat was found.

"But the tide was out; there was more than a quarter of mile of mud flats, with mud a foot deep, between dry land and the boat. Two men carried me this distance, and then all three of us had to get in a boat barely capable of carrying two, because there was another mud flat equally extensive on the other side, and I had to be carried out on that side.

"When you consider that it was a very hot day, with no breeze—else our boat would have been swamped—and that I weigh 200 pounds, I think that the dollar for ferriage is a reasonable charge. I made the engagement, and the way the audience responded to the demonstration persuades me the money was well spent."

Borrowed a Handcar

The explanation on the handcar was more laconic. It came from a man agent who was to explain the county demonstration work to an isolated community back in the mountains. There were other men in the party at the start, a general program having been arranged to include demonstrations by specialists from the State college of agriculture. The report was about as follows:

"Promised to hold meeting at Dry Forks; cloudburst took out railroad in valley this side. No trains running. Never missed an engagement yet, and too early to begin missing them now. Seed-corn man and I took handcar, went as far as we could, pushing car on foot where water was deep. Finally had to swim for it and abandoned car, which was washed down stream when embankment gave way later. No rain on other side of mountain, and rousing meeting. Lots of good accomplished; work started with a vim. Handcar cheap at the price."

Cane and Rice Harvests Call for Labor; Town People Asked to Help

If the large sugar-cane and rice fields of the South, particularly Louisiana, are to be saved at harvest time, townspeople must volunteer their services and go to the aid of the planters.

Reports received by the Bureau of Crop Estimates of the United States Department of Agriculture from Louisiana state that there is a great shortage of field help and the labor situation grows more serious as harvest time approaches. Town people in the rice and cane districts are urged to follow the example set by many towns and cities in the wheat-growing sections, where in many cases, urban organizations cooperated with the wheat growers in securing help at harvest time.

Louisiana this year has a sugar-cane crop estimated at 533,880 acres which, according to the August 1 forecast of the Bureau of Crop Estimates, will probably produce 4,537,796 short tons of cane, and on the basis of 138 pounds of sugar per ton of cane, will yield about 250,548 short tons of sugar. It is expected that New Orleans will respond to the call for help and supply a good percentage of the labor needed in the cane and rice fields. United States Farm Labor Specialist J. F. Harbart, who has headquarters at Jennings, is conducting an investigation to determine when and where farm help will be needed. If found necessary it is expected that some Mexican labor will be secured.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended August 31, 1918:

Bread and Cereals. Library Leaflet 4.
Vegetables and Fruits. Library Leaflet 5.
Meat and Meat Substitutes. Library Leaflet 6.
Fats and Sugar. Library Leaflet 7.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

PASTURING ON MEADOWS

It is a common practice on farms where timothy is grown to allow live stock to graze on the meadows during the late summer and early fall. If there is a comparatively large growth of aftermath timothy, meadows may be used for pasture without serious injury, says the United States Department of Agriculture, provided the grass is not grazed very closely at any time and the animals are kept off the meadows when the soil is wet and soft.

Meadows are less ferquently pastured during the spring months. It is the opinion of most timothy growers that grazing the meadows at this time injures the crop to such an extent that the practice is not profitable.

In many sections where timothy is grown, especially where dairying is an important industry, it is quite common to use the meadow for the production of hay for one or two seasons, then to pasture it for one or more entire seasons before plowing the land for other crops.

WATCH SWEET-CORN SEED CLOSELY

Sweet corn spoils much more quickly than field corn, and can not readily be cured in large shocks, but should be husked from the stalk and spread thinly on staging to cure. A convenient way of storing sweet corn is on the ear.

LIME MAY INCREASE WHEAT YIELDS

Although not generally considered as a fertilizer, lime is of great benefit to wheat and usually will result in considerably increased yields, especially where used in connection with other fertilizing materials.

STOCK-RAISING IS ADVISED FOR SUGAR-BEET GROWERS

Animals Can Utilize Tops and Pulp of Plants and Increase Profits

Finishing for Market, However, Demands Other Feed—Pasturing, Racks, and Ensilage Methods Discussed

Sugar-beet growers should raise more live stock, is the recommendation made by the United States Department of Agriculture.

The stock utilize by-products of sugar beet growers—the tops and pulp—and increase the growers' profits, but there is another reason—the Nation needs more meat as well as sugar. The combination of stock raising and sugar-beet growing, while beneficial to farmers, will also benefit the Nation.

Live stock on the sugar-beet farm constitutes an important factor in success of beet growing from two standpoints—the utilization of beet tops and pulp to the best advantage and the production of stable or barnyard manure which can be used to enrich the soil.

The feeding operations should be located on the farms where the best tops are produced. When practicable the pulp should be handled with frame and fed. There should be available labor for handling the stock and other feeding stuffs used in combination with the pulp and tops should be obtainable.

Good for Live Stock

Sugar-beet tops and pulp are good feed for many kinds of live stock including chickens, hogs, sheep, cattle, and, to some extent, horses. Generally the tops and pulp are fed to sheep and cattle. They may be pastured off, a process which consists in turning the live stock into the beet field after the beets have been harvested and the roots removed. The tops are left scattered over the ground, and this method of feeding results in the ground being more or less trampled. Sheep especially are inclined to travel more generally in paths, thereby trampling the ground unevenly. In no case should the pasturing of the tops be permitted when the ground is wet, since the ground itself would be seriously injured by trampling in that condition and many of the tops would be wasted by being trampled into the ground. While live stock thrives on beet tops and pulp, other feed must be used in finishing the animals for the market. Beet tops, especially the crowns, contain considerable mineral matter which is beneficial to live stock, but it should not be fed in too large quantities.

Feeding in Racks Economical

Aside from pasturing the tops they are sometimes allowed to cure partly and are then gathered into piles, hauled to the feed yard, and fed in racks. This is a much more economical method than pasturing, but it involves the additional expense of gathering and hauling. The tops may also be used as ensilage. When chopped with straw, cornstalks, or other roughage excellent silage is produced. Both the tops and the pulp are excellent for dairy cows, since they act as a tonic upon the animals as well as a food and increase the flow of milk. Pulp is used either fresh or dried. It is dried artificially, either by itself or in combination with molasses. The object in drying the pulp is to make it easier to handle. About 80 per cent of the weight is lost in drying. The dried pulp should be soaked for several hours before it is fed to stock.

Animals can not be finished for the market on the beet by-products alone, and unless other feed is available it will not be advisable to purchase animals for feeding purposes with a view to turning them on the market later. If the farmer is provided with dairy cows it is advisable to furnish them with one or two feeds of tops or pulp each day. The tops, when cured or pitted, will keep for several months; the pulp, when left in a large pile, will not spoil for feeding purposes, except in a thin layer on the surface. If the tops or the pulp are fed heavily to dairy cows, a distinct increase in the flow of milk marks the top and pulp-feeding period, and there will generally be a distinct falling off in the flow of milk when this feed is discontinued. If the supply of tops and pulp is limited, it is better to continue the feeding over a longer period, giving a smaller amount to each of the animals daily.

Homemade Wind Shield Allows Lime Spreading Despite Breeze

Many farmers spread lime on corn stubble which is destined for winter wheat production. Often the lime-distributing work is discontinued temporarily because of prevailing winds which blow for several days at a time. Most kinds of lime are finely powdered so that their uniform distribution is impossible when the wind is strong.

Any farmer can equip his lime spreader with a homemade, improvised wind shield which will promote the effective use of the machine at any time no matter how the wind blows. Gunny sacks or an old tarpaulin of sufficient length to reach from the lime box to the ground should be attached to the machine in order to protect the spouts through which the lime is distributed. It is necessary to weight the free ends of the sacks or canvas with pieces of wood or iron so that these shields will be held perpendicularly.

Another plan is to equip each spout of the lime spreader with a piece of rubber tubing such as is commonly used on grain drill spouts through which the lime may flow from the supply box to the ground. The use of this tubing protects the lime from the action of the wind and is an inexpensive medium which favors the efficient use of the lime spreader during periods, when, without such equipment, the implement would be idle.

SAVING ALL KERNELS MEANS SAVING OF MILLIONS OF BUSHELS OF CORN

Of all the ears of corn produced in the United States each year, comparatively few entirely escape damage. Most of them lose only a few kernels because of earworms or other insects or are more or less reduced in value by molds or discoloration. This damage is usually passed without concern, but when it is considered that a loss of only one kernel per ear amounts to an annual loss for the United States of at least 5,000,000 bushels, says the United States Department of Agriculture, and that this amount must be multiplied several times to represent the total annual loss, it becomes apparent that these losses are worthy of attention, particularly at this time when no food or feed should be wasted.

By improving the shuck protection ear damage in any section can be considerably reduced, but such protection can be made of the greatest value in sections infested with weevils. In investigations conducted by the Department of Agriculture it was found that stored corn having well-developed shucks, fitting tightly and extending beyond the tip of the ears, were less subject to weevil infestation, contained fewer rotten, discolored, and worm-moldy ears than stored corn not well protected by shucks. The department recommends the selection in the fall of seed ears which have good shuck covering and the storing of shuck-protected ears in their shucks in localities where weevil injury may be expected. Unprotected ears should be fed or sold as early as possible.

NEED OF ANIMAL FOOD

It has been found that such animal food as milk, eggs, and meat contains growth-producing substances in quantities sufficient for the rapid growth and development of the body. While these substances are found in certain vegetables and grains, they are in quantities so small that often in the ordinary diet sufficient quantities are not consumed to meet the needs of the growing body.

Only Simple Equipment Needed to Make Soft Cheeses at Home; Method Described

Neufchatêl and cream cheese, two of the group known as soft cheese now made almost exclusively in factories with extensive equipment, can be made in the home. The United States Department of Agriculture has worked out a method for their manufacture which is simple and does not require elaborate equipment. This method, together with many recipes for using soft cheeses, are described in Farmers' Bulletin 960 recently published by the department. The plan offers an excellent opportunity, the bulletin says, for the disposal of surplus milk on the farm and enables farm housewives to make a fresh, wholesome, and attractive food at home.

Neufchatêl cheese should be made from whole milk that tests about 4 per cent, and cream cheese from milk testing 6 per cent butter fat, according to the bulletin. Both are made in this way: To a quantity of 30 pounds, or 3½ gallons of milk, add a pint of good starter or clean-flavored sour milk and stir well. Warm the milk to between 80 to 83° F. Then add about 8 drops of rennet, which has previously been dissolved in a cup of cold water. Stir in thoroughly and set the milk aside to curdle. Powdered pepsin (one half the size of a pea) or one-third of a junket tablet may be used in place of the rennet. The cheese may be made without a starter, in which case the milk should be ripened (allowed to stand at 70° F.) for six or seven hours before adding the rennet.

Pressing the Cheese.

After 16 to 18 hours, the time usually necessary for proper curdling, pour the milk into a drain cloth and allow to drain from two to four hours or until practically no whey drips from the cloth. Then place the bag of curd between two clean boards, put a 50-pound weight upon it, and let it stand for six or eight hours. Remove the curd from the cloth to a pail. Sprinkle two level teaspoonfuls of fine salt over it, and thoroughly mix with a potato masher until it has a smooth buttery consistency. Running the cheese through a food chopper or working it with a butter worker produces the same result.

The cheese should then be placed in a crock or enamel dish until ready for use, and kept at a temperature of 50° F. or below. If it is to be sold, it should be molded into small packages and wrapped in tinfoil, or packed in glass jars.

In nutritive value these cheeses compare favorably with other staple foods, especially meat. They are rich in protein and fat and are easily digested. Perhaps the most desirable ways to serve them are in the forms of salads, sandwiches, and in combination with other foods such as olives, green peppers, pimentos, pickles, different kinds of nuts, various vegetables, and nearly all fruits.

Harvest Mature Peanuts, Stack Them Well, Get Maximum Value.

To get the maximum amount of food value from the peanut crop—to save a valuable source of food supply—the peanuts should not be harvested too early in the season, and they should be carefully cured and stacked to prevent injury. Hundreds of thousands of dollars are lost annually as a result of poor methods of stacking and handling peanuts, according to a publication of the United States Department of Agriculture, Circular 81 of the Office of the Secretary.

Attention to a few simple rules, the publication adds, will reduce this loss materially and result in saving valuable food.

Harvesting peanuts before they are mature, as is often the case among inexperienced growers, is responsible for considerable loss in the yield of marketable peanuts. A few of the peanuts are very likely to mature and sprout during rainy weather before the crop is ready to be dug. The vines assume a yellowish appearance when the crop is mature, which is usually, but not always, a good indication as to the proper time for harvesting. This, together with the turning brown and falling off of the lower leaves, and the plump appearance of the pods should be the guide in determining the maturity of the crop.

After the crop has been dug the vines should be stacked before the leaves become dry and have fallen off, and special care should be given to prevent the peanuts from molding. The stacks should be small and placed around poles provided with two cross pieces nailed to the pole 10 to 12 inches from the ground to support the vines. After curing in stacks for a few weeks peanuts can be hauled to the barn and stored without danger of loss.

Some growers who find it difficult to obtain poles rake the peanuts into windrows with a hay rake and then stack them like hay. This method requires a longer time for proper curing and is successful only when small stacks are made and the peanuts are quite dry before being stacked. If the peanuts become wet they are seriously damaged for commercial purposes, as the pods will become discolored.

Connecticut County Agents Have All Farm Resources Catalogued

Five Connecticut county agents have so card indexed the agricultural resources of their counties that, by reference to file cards, they can locate anything from a pure-bred bull to a gasoline tractor. In a directory devised as a result of a complete agricultural survey in each of these counties, every farmer is classified according to the live stock or produce which he raises and markets.

If a farmer wishes to buy a Berkshire boar, he writes or telephones to his county agent, who, in turn, refers to the directory and then can direct the inquirer to the proper supply source. The agent can aid as expeditiously another farmer who wants a pure-bred Guernsey bull. This agricultural information is of vital value to the county agent and materially decreases the farmers' difficulties in collecting and dispensing such data.

The Connecticut survey was the idea of the agent in Litchfield County, who began taking an agricultural census last March. Subsequently, all but three of the counties in the State adopted the plan, which so appealed to the governor that he made recommendation that the farm census be an annual affair. Present plans are to have the next survey include every county in the State.

MANURE SPREADER SAVES TIME AND WASTE

It takes as long to load a manure spreader as it does a wagon box, but the spreader will unload and spread the manure in a third of the time. Hauling manure in a wagon box and spreading it on the field with a hand fork is hard and disagreeable work. It can be done much easier with a spreader and the material is more evenly distributed. The spreader is a useful implement to have at any time when manure is to be spread, but particularly so now when labor is scarce and the need for increased crops demands that not a pound of fertility be wasted. Save time and avoid waste—buy a spreader. If the amount of hauling is not sufficient to justify the investment, it may be worth while to rent or borrow your neighbor's.

Conscientious Objectors in Camps Are to Work at Food Production

After struggling for a long time with the knotty problem of conscientious objectors in army cantonments, the War Department now announces that the difficulty has, to a large degree, been solved through the aid of the farm help specialists of the United States Department of Agriculture.

In the various States where there are farming communities which include sects opposed to war, such as the Dunkards and Mennonites, and where additional farm help is needed, these places are made known to the cantonment commanders, together with a record of their farm-labor needs.

The plan has worked out so well that in the three camps where definite lists of objectors were compiled, practically all of these men have been placed. Camp Meade had 88, all of them now at labor on farms; 100 of the 102 men at Camp Lee have been placed, and the majority of these at Camp Taylor.

Final arrangements have been made for labor furloughs for objectors in Camps Gordon, Ga.; Jackson, S. C.; Dix, N. J.; Upton, N. Y.; Sherman, Ohio; Devens, Mass.; Custer, Mich.; Grant, Ill.; Dodge, Iowa; Lewis, Wash.; and Fort Riley, Kans. The labor specialists of the Department of Agriculture in the States where the cantonments are situated have been instructed to communicate with specialists in other States in case they can not place all the conscientious objectors at work at once.

The furloughed men are under strict regulations drawn up by the War Department. They are placed on farms at a standard wage and reports of their conduct and effectiveness are made to the cantonment commander at monthly intervals. If their services are not satisfactory the commandant is promptly informed of the fact.

The War Department has expressed itself as thoroughly pleased with the arrangements by which the Department of Agriculture, through its farm help specialists, has aided in placing these men where their services will be an aid to victory through food production.

THOROUGH TILLAGE NEEDED FOR NEXT BIG WHEAT YIELD

Big wheat yields, the object of every member of the American land army who is planning to take part in the 1919 Liberty wheat harvest, begin with the preparation of the seed bed. It must be firm, moist, and well compacted beneath, with a mellow, finely divided upper 3 inches of soil, and earliness in its preparation is important, say specialists of the United States Department of Agriculture.

If the importance of thorough tillage were more generally recognized and proper methods of seed-bed preparation were employed more commonly throughout the so-called humid areas, there would be less frequent losses from drought and better wheat crops would result, the department specialists say. In this area the mistake is often made of thinking that there will always be moisture enough present for maximum crop growth, and the result is short crops where more attention to moisture preservation would have assured good yields.

If wheat is grown in rotation with oats or after wheat, the stubble should be plowed to a depth of at least 7 inches immediately after harvesting the crop of grain. The ground should be harrowed within a few hours after plowing, and cultivation with harrow, disk-drag, or roller should be given as necessary thereafter until planting time, to kill weeds, to settle and make firm the subsoil, and to maintain a soil mulch above. Late plowing does not allow time for these necessary operations.

If a cultivated crop precedes wheat, frequent cultivation given to this crop will preserve moisture and maintain a soil mulch.

REDUCE WINTERKILLING OF WHEAT.

An average of 10 per cent of the area annually sown to wheat is abandoned on account of winterkill. Much of this abandonment can be prevented and the Liberty Wheat Harvest of 1919 increased by planting wheat in the right kind of soil. Winterkilling is usually a sign of poor drainage and the worst losses occur in soil that is low in humus or vegetable matter. On poorly drained soils wheat is often killed directly by the accumulation of water in low spots or is smothered by the formation of ice in winter. Wheat plants are also often heaved out of the ground by the alternate freezing and thawing in the fall or spring, this being due to the formation of ice in soils saturated in water. Sufficient moisture should be present for good growth, but all water in excess of this amount should be promptly removed by proper drainage. Better drainage results from the improved physical condition of the soil in which humus is plentiful.

If level cultivation has been practiced, a good seed bed can usually be prepared by disking and harrowing after removing the crop. If weeds are present, however, it may be advisable to plow shallow, the disk preceding and following the plow.

Early plowing and thorough tillage of the plowed soil aid in catching the water which falls and in storing this and the water already in the soil for use by the wheat plants. The firm seed bed under this mulch enables the young wheat plants to make use of the subsoil waters which rise by capillarity when there is a perfect union between the plowed soil and the subsoil. Sufficient water is thus assured for the germination of the seed when sown and for the early fall growth of the seedlings, a very important consideration. Plant food is also likely to be more abundant in the soil when such methods are employed.

VALUE OF 100 POUNDS OF MILK

From 100 pounds of skim milk 15 pounds of cottage cheese may be made, with a protein value equal to 22.5 pounds of pork. In other words, a quart of skim milk makes more than a third of a pound of cottage cheese. When a hundred pounds of skim milk is fed to a pig the skim milk is converted into about 4.8 pounds of dressed pork, when combined with other feeds to the best advantage. For every hundred pounds of skim milk fed to pigs instead of used for human food in the form of cottage cheese, there is a food loss equivalent to the protein in 17.7 pounds of meat. That is not all; after the manufacture of cottage cheese, the whey remains and is available for stock feed. From 100 pounds of skim milk made into cottage cheese there is a residue of about 80 pounds of whey, which is regarded as having a feeding value of about half that of skim milk, and on that basis, when properly combined with other feeds, will produce 1.9 pounds of pork. So, by making cottage cheese and feeding the whey to pigs, the human food produced from 100 pounds of skim milk has the same protein value as 24.4 pounds of meat, or 19.6 pounds more than when all the skim milk is fed to pigs.

Generally, it is best to cut brush as close to the ground as possible and avoid leaving sharp points on the stubs that might injure work stock or cattle. If the wood is of no value and if it is not planned to cultivate the land before stumping, it may be best to cut off the trees rather high above the ground. If stumps are left 3 feet high, there will be less sprouting than if cut close to the ground, and stumps left at that height may be more easily pulled.

COMBINATION FARMS PAY IN NORTHERN EDGE OF CORN BELT

Dairying and Stock Raising with Good Rotations Suit Conditions

Five-Year Variations in Plantings Given as Well Adapted—Report of Study by Management Specialist Published by Department

General farming and live-stock raising, with a limited amount of dairying and a good crop rotation is, on the average, the type most easily made profitable on most farms in the northern edge of the corn belt. This is brought out in a study of 300 owner farms and 153 tenant farms in Lenawee County, Mich., which is typical of southern Michigan, northwestern Ohio, and northeastern Indiana. A report of the study, which was made by a farm management specialist of the United States Department of Agriculture, has just been published by the department as Bulletin 694.

How Combination Farms Pay

It was found that specialized dairy farms paid better normally than dairy and grain farms, but on the average did not pay as well as the combination of dairying and hog raising. Dairying with hogs and grain usually yielded better labor income than any other combination. The outstanding advantages of this type as compared with others are greater diversity of income, a larger percentage of receipts for sale of live stock and live-stock products, and a comparatively small percentage of the income from the sale of crops, because for the most part the crops are sold to better advantage by feeding them to live stock. The types of farming and the general conditions which prevail in this section make the size of a farm a very important factor bearing on the income, according to the bulletin. There is also a direct relation between the amount of capital invested and the labor income of the operator. Generally speaking, the larger the farm and the greater the investment, the greater the percentage or rate of income.

Cropping System Important

The cropping system and the proper distribution of crop area, it was learned, were important factors in profitable farm management. On the more profitable farms studied in this territory, from 30 to 50 per cent of the total crop area was in corn, an average of 10 per cent in oats, an average of 30 per cent in wheat, from 1 to 10 per cent in barley, and from 20 to 30 per cent in hay.

As a result of the study it was found that the following rotation is well adapted to conditions in this area: First year, corn; second year, corn; third year, oats and barley; fourth year, wheat; and the fifth year, hay. Alfalfa is a valuable addition to the average cropping system and the bulletin suggests an increase in the acreage of this crop throughout the region.

GRAIN SMUT LOSSES ARE ENOUGH TO FEED AN ARMY; PREVENTABLE

The extension division of the North Dakota Agricultural College, with the U. S. Department of Agriculture, through its representatives, the county agents, is conducting a State grain-smut survey. Eight field men from the Federal department are working with the county agents to locate smutted areas.

Just before seeding time the county agents will conduct seed-treatment demonstrations in the various localities. Present methods of treating grain for smut are simple, cheap, and sure in most localities. There are three general methods of disinfecting the seeds of cereal crops—treatment with formaldehyde, with copper sulphate, and with hot water. Under the most prevalent methods of control, seed grain is treated for less than 2 cents a bushel.

FOR any man, whatever his fortune, to employ another man for a service of mere comfort or convenience, or for any worker, whatever the attraction in wages, to engage in an unnecessary undertaking if he has the muscle and the strength to endure in heavy war tasks, is to commit the unpardonable crime against civilization and almost to be guilty of treason against the Republic.—Clarence Ousley.

Losses Run High

In some cases, the spring wheat of North Dakota and Minnesota has a smut content as high as 80 per cent, while the oats, barley, and winter wheat losses verge around 30 per cent.

In eastern Washington and northwestern Idaho, disinfection of seed is of comparatively little avail, because of the very general infestation of the soil. Early sowing, thorough cultivation of summer-fallowed fields, late planting where late seeding is practiced, attempts at soil treatment at seeding time which have not been very successful, and also the development of resistant varieties of wheat all have been practiced with greater or less success.

Waste Can Be Prevented

Bunt, or the stinking smut of wheat, spoils enough of our annual wheat crop to make 4,000,000 barrels of flour. Its yearly tribute from oats is sufficient to feed 1,000,000 cavalry horses for 12 months. This waste is preventable.

In the United States the losses from bunt are to be reckoned not only in yield, which amounts to about 25,000,000 bushels annually, and in the dockage for smutty grain, probably totalling $10,000,000 each year, but in the explosions which occur in thrashing. Farmers' Bulletin 939 contains complete information relative to all the grain smuts and tells how to control them.

2,000,000 Cotton Bales Charged to Work of Boll Weevil in 1916

Boll weevils prevented the production of about 2,000,000 bales of cotton of 500 pounds gross weight and 970,000 tons of cotton seed in 1916, according to a rough estimate by the Bureau of Crop Estimates of the United States Department of Agriculture. The difficulties that are opposed to the making of this estimate are formidable and can not be overcome with satisfaction, but the result does not seem to be unreasonable, the department's estimaters say.

Other causes of crop loss were operating in the same year, such as various features of the weather, worms, and plant diseases, and an attempt is made to separate losses due to these causes from those caused by the boll weevil. What would have happened in crop production had the boll weevil not been present is a problem involving uncertainties, and the probability can be only crudely indicated.

The reclamation of swamp lands in this country proceeds. The more commonly known areas of activity are in eastern North Carolina, Florida, southeast Missouri, and California, but a substantial and systematic effort to reclaim the extensive wet area of Louisiana is progressing. This State ranks next after Florida in area of swamp land; one-third of its area is classed as swamp and overflow land, or over 10,000,000 acres. For many years some of this land has been reclaimed and now produces rice, sugar cane, corn, forage, and truck crops, oranges, and other citrus fruits. The long growing season makes possible many rotations of crops, and with some of them three crops mature on the same land in a year. The mild winters make stock raising profitable, since green feed can be grown during the entire year.

On many farms in the East and Middle West there are tracts covered by woods and brush that are better adapted to crop production than to forest growth.

No "Best Method" of Clearing Stumps, But Bulletin Describes Several Ways

Methods of clearing land that have proved successful in the cut-over timber sections of the United States are described in Farmers' Bulletin 974, recently published by the United States Department of Agriculture.

Stumps occupy valuable land; foster the growth of weeds, for in order to keep the land in their vicinity clean much hard labor is necessary; mar the appearance of otherwise smooth fields, and hence reduce the selling price of a farm. They furnish shelter for harmful insects and animals and prevent the efficient use of modern machinery. The bulletin tells how they may be removed by burning, by explosives, by mechanical means, or by the combination of any or all of these three methods. There is no "best method" of ridding land of stumps, the bulletin adds, and the selection of a method for their removal should be determined only after a consideration of the facts involved.

Timber land that is not producing a profit and which is to be cleared is usually utilized as pasture for several years before stumps are removed. During this time the under brush is cleared up and many small stumps will entirely decay. If the weeds and sprouts in a pasture are kept under control native grasses will gradually establish themselves, even if no seeding has ever been done.

Care Needed in Burning.

Destroying stumps by means of burning is an economical method and is widely practiced, but care should be exercised if this method is used in order to destroy the roots, so that they will not interfere with cultivation.

A common method of preparing a stump for burning is to dig two holes on opposite sides of the stump to a depth of about 30 inches. Generally connection is made at the bottom of these holes by digging away the wall of earth between them Any adhering earth is scraped from the tap root and a fire started in one of the holes. If the fire is kept up it will burn most of the objectionable underground parts of the stump. Another method successfully used in the longleaf pine area of the South is to dig a hole on one side of the stump, and with a 1½-inch or 2-inch auger bore a hole diagonally through the stump from the opposite side to the bottom of the hole. A fire is then started in the excavation and the auger hole serves as a flue. A method largely used in the Northwest is to bore a hole horizontally into the base of the stump to a point a little beyond the center. Another hole is started as high up on the side of the stump as possible and bored downward at an angle until it meets the first boring. A fire is started at the interception by the use of oil, pitch, coals, or by dropping a hot iron attached to a wire into the hole. After the fire is started brush is piled about the stump

Dynamite on Wet Ground.

Dynamite is frequently and successfully used in removing stumps. Small charges are found useful in splitting stumps which can then be burned more readily. Larger charges are used to break the stump in pieces, so that they may be pulled easily, or sometimes to remove them from the ground entirely. The best time to blast stumps is when the ground is saturated with water, and the electrical method of firing blasts is recommended.

Where a large number of stumps are to be removed the bulletin recommends the use of a stump puller. There are two general types: those that pull the stump from the side, such as a capstan type, and those that lift the stump vertically out of the ground by the use of a tripod. The bulletin describes in detail the advantages of the various methods of removing stumps and gives other valuable information regarding clearing of land.

Copies may be obtained, so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C.

On thousands of farms throughout the cut-over sections the most vital problem in normal times is how to get unproductive land cleared so that it will bring in an increase of revenue.

On many farms at the present time there are small tracts of woodland that might be profitably cleared. When such operations can be undertaken in spare time and without interruption to regular farm work, farmers can profitably increase their tillable area.

Cut-over land, or land from which the stand of merchantable timber has been removed, may be found in all of the timbered States, but most of our cut-over acreage is located in the Southern States, where there are over 100,000,000 acres; in the Lake States, where there are over 30,000,000 acres; and in the Northwestern States, where there are over 8,000,000 acres. On much of this cut-over land there is at the present time sufficient valuable second growth to warrant keeping it for permanent timberland.

FARMERS CUT MEAT COST BY COOPERATIVE BUTCHER SHOP

Each Owns Share of Stock and Furnishes Animals for Slaughter

Plan Tried Successfully in Iowa Recommended for Use Elsewhere—Helps to Simplify a Table Problem in the Country

An Iowa farming community has achieved success in the establishment and operation of a farmer's butcher shop which dispenses fresh and inexpensive meat in the locality. Approximately 18 years ago the first "beef ring" was organized in this section, and during the subsequent five years six other similar clubs were formed, with a total membership of more than 200 farmers. The principal objection to these "beef rings" was that each household had to consume a certain amount of beef on stated days during the week in order that the available supply would be handled efficiently. This tended to make the beef diet monotonous and ultimately led to the amalgamation of the "beef rings" into a farmer's butcher shop.

The farmer's meat market, under the competent direction of an experienced butcher, supplies the members with fresh beef, mutton, and pork on order, the surplus being sold to the local trade at a rate from 5 to 7 cents lower per pound than the retail butchers charge for similar cuts and grades of meat.

Stock for Steak.

Each member owns one share of stock in the project and, in turn, furnishes one head of cattle or as many sheep or hogs as are desired for slaughter. It is prerequisite that all animals be in prime market order when they are delivered at the plant; that they be subjected to both antemortem and postmortem examination and that the cattle must not be more than two years old at the time of slaughter. The member is credited with the dressed weight of the live stock which he provides minus a shrinkage of 15 per cent. He receives a coupon book equivalent in value to the amount of meat which he furnishes, his allotment being apportioned equally in steaks, roasts, and boiling pieces. Each member is privileged to purchase as much or as little meat as he wishes, and at any time he can "cash in" on his coupon book at the prevailing prices.

Aim Is Not Profit.

This meat distributing organization is strictly cooperative and distinctly under farmer control. It pays no dividends; in fact, the project is so managed that the surplus is just enough to reimburse the butcher for his services and to cover the operation

expenses. Any farmer of the locality is eligible for membership if he will obey the by-laws of the organization and when called upon furnish his share of the live stock for slaughter.

At a period when the general inclination is to minimize living expenses, the matter of the farmer's meat market is particularly timely, according to the United States Department of Agriculture. It merits study and investigation in the live-stock-producing areas in which some such plan "for cheaper meat" may seem feasible. Furthermore, it simplifies the "fresh meat for the farm family" problem.

Wherever Bermuda grass will grow a pasture may be started by digging up the roots from an established field and transplanting them to the new land late in the winter.

Fire Guards Plowed Around Field Needed to Prevent Loss of Grain

Fire guards of one or more furrows should be plowed around all fields of shocked or stacked grain, advises the United States Department of Agriculture, to prevent conflagrations starting from the sparks of locomotives, tractors, thrashing engines or from the careless use of matches, pipes or cigarettes.

The exigency of the situation demands that farmers who previously have opposed furrowed fire guards now make practical application of this control. Farms also should have available fire-fighting equipment such as chemical extinguishers or barrels and buckets of water, the department suggests.

Precaution should also be exercised against "hot boxes" and other improperly adjusted machinery which are possible sources of loss. Where possible every farm should be equipped with several chemical fire extinguishers, as these first aids in fire fighting are extremely valuable protection for the grain in the stack or bin, as well as for the farm buildings and other produce or live stock in storage or stable. If such extinguishers are deemed inadvisable, at least the farmer can have two or three large barrels of water and several buckets handy for emergency fire needs.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, R. A. PEARSON.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, G. I. CHRISTIE.
Mr. Christie, under the immediate supervision of Assistant Secretary Ousley, will direct the activities of the department in connection with the farm-labor problem.

[1] Assistant to the Secretary, WILLIAM WALLACE MEIN.
Mr. Mein is the immediate representative of the Secretary of Agriculture in the discharge of the duties imposed upon him by the President's proclamation of February 25, 1918, with reference to licensing the importation, manufacture, storage, and distribution of fertilizers and fertilizer materials.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, W. J. SPILLMAN, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Office of Public Roads and Rural Engineering, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Brand, as Chief of the Bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licensees operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, E. B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI SEPTEMBER 18, 1918 No. 7

SKILLED FARM LABOR TO BE IN DEFERRED DRAFT CLASSES

Agricultural Advisers to Work With Each District Board.

County Agents Called on to Supply Facts on Labor Needs—Unskilled Workers Apparently in Early Classifications.

A plan has been agreed upon by the War Labor Policies Board, Provost Marshal General, Secretary of War, Secretary of Agriculture, and Secretary of Labor to put into deferred classification such persons in the new draft as are necessary in agriculture, industry, and other occupations.

Three advisers are to be associated with each district draft board to present facts relative to the supply of necessary workers in these three occupational groups. The agriculture advisers will be nominated by the Secretary of Agriculture. They will gather accurate facts regarding the requirements of agriculture for the various classes of workers in their own districts. They should have facts also as to the requirements for such classes in other districts in order that workers not sufficiently necessary in one district to entitle them to deferred classification may have opportunity to go to other districts in which they are needed.

County Agents to Give Facts.

The Department of Agriculture has sent a questionnaire to each county agent, asking him to furnish reliable information at once relative to the farm-labor needs in his county. The questionnaire is to be duplicated, one copy going to the State farm-help specialist and one returned to the department. The Department of Agriculture will undertake, both directly and through the State farm-help specialist, to keep each district adviser informed as to the needs of necessary farm workers in various parts of the country.

The purpose of the information called for is to assist the district draft boards in keeping in agriculture the (a) "necessary skilled farm laborer in necessary agricultural enterprise" (Deferred Class II); (b) "necessary assistant, associate, or hired manager of necessary agricultural enterprise" (Deferred Class III); (c) "necessary sole managing, controlling, or directing head of necessary agricultural enterprise" (Deferred Class IV).

What the draft boards desire are the facts as to necessary skilled workers. The unskilled workers apparently are not to be considered for deferred classification; they are regarded as more important for the Army than for agriculture and industry. Necessary skilled farm laborers should not be confused with inexperienced help that, with a little training, can do fairly well some kinds of farm work.

Definition Suggested.

A "skilled farm laborer" has been defined by one authority as "one who has the strength, intelligence and experience to perform acceptably the ordinary farm operations of the district, community, or farm concerned, whether in fields, ranches, orchards, or barns." This definition is merely suggested as a guide. The draft boards may have still other standards.

> **THE program of work of the Farm Bureau is the Nation's war program of work in agriculture in the Northern and Western States.**

A further suggestion may be made with reference to "necessary" as applied to skilled laborers. Presumably the amount of skilled labor that may be regarded as "necessary" is to be determined by the requirements of the present agricultural war program—something more than a normal production of most farm products. Pertinent questions in this connection therefore are such as: "Are there sufficient skilled workers to produce the live stock, cereals, fruits, etc., required by this program? Do these workers toil harder and longer hours? Do some children, especially under 14 years of age,

(*Continued on page 5.*)

MORE HOG-CHOLERA SERUM IS USED DESPITE LESS DISEASE

Raisers More Appreciative of Remedy That Government Supervises.

Officials Warn Against Use of Medicines Other Than Serums—Nostrums Fail to Cure and Often Cause Loss.

More anti-hog-cholera serum was manufactured last year than in any previous year despite a decrease in the amount of hog cholera, according to reports to the United States Department of Agriculture. The increased demand for anti-hog-cholera serum is ascribed to the greater value of hogs, with the consequent greater loss when one dies, and to the fact that hog raisers are becoming more appreciative of the value of using serum manufactured under Federal supervision.

Serums Only Effective Remedy.

Department of Agriculture officials warn hog raisers against the indiscriminate use of medicines or proprietary preparations other than serums, as experience has shown that nothing except serum, properly prepared and administered, is effective. Medicines other than serums, according to department officials, are worse than useless because they not only fail to cure or prevent disease but allow the loss of the animals they are advertised to save, thus taking money from the farmer and meat from the Nation's supply.

Antitoxins, serums, and other biological products for the treatment of domestic animals must be prepared in establishments operated under licenses issued by the Secretary of Agriculture before they may be marketed legally in interstate trade. Products of licensed establishments are prepared under the supervision of trained veterinarians and their assistants of the Bureau of Animal Industry of the department. Sixty-eight veterinarians, in addition to 41 inspectors and clerks, are now engaged in this work and are located in 11 States.

Federal regulations require that all animals used in the preparation or test-

78536—18

ing of anti-hog-cholera serum and hog-cholera virus, both of which are used in the treatment of hogs in the prevention of hog cholera, be procured direct from farms and not transported through stockyards or similar places where they might be exposed to contagious diseases. As an additional safeguard all animals must not only be inspected by bureau veterinarians at the time they are presented for admission to licensed establishments, but each animal is carefully inspected at the time of inoculation as well as immediately before bleeding for the production of either virus or serum.

Testing of Products.

Veterinary biological products, after being properly prepared, are tested by laboratory methods and upon animals to determine whether they are free from contaminating organisms and will accomplish the object for which they are intended.

Federal inspectors as well as employees of establishments are required to keep satisfactory records relative to the inspection and manufacture of all products. In the year 1917, 250,041,290 cubic centimeters of anti-hog-cholera serum were collected in licensed establishments. Of this amount 1,867,106 cubic centimeters were destroyed as unfit for use.

INSPECT COTTONSEED MEAL.

Federal food inspectors of the Bureau of Chemistry, United States Department of Agriculture, have been instructed to look out for interstate shipments of cottonseed meal and to take samples from all such shipments suspected of being adulterated or misbranded under the Federal Food and Drugs Act.

Investigations have shown that some of the cottonseed meal is adulterated with ground cottonseed hulls, and much of it is labeled as containing a higher percentage of protein, the chief food constituent, and a lower percentage of fiber, which has very low feeding value, than it actually does contain.

Cottonseed meal is a highly nutritious stock feed, and its more extended use is advocated by the United States Department of Agriculture and the State experiment stations. The practice of adulterating it with ground cottonseed hulls and misbranding it as to protein and fiber will bring it into disrepute and mitigate against its more extended use, in the opinion of the department specialists.

Several cases charged with adulteration or misbranding of cottonseed meal have already been terminated in the courts and fines imposed upon the shippers responsible for the violation of the Federal Food and Drugs Act.

American-Egyptian Cotton Successful in Southwest; Permanence Is Indicated

The establishing of the American-Egyptian cotton industry in the irrigated valleys of the Southwest is assured, according to the United States Department of Agriculture, if present demands are maintained, prices remain near the present level, and if labor is available to harvest the large crops which have been planted.

War demands have had much to do with the recent phenomenal growth, much of the product being taken for special automobile tires, and for airplane and balloon fabrics.

Area and Value Increase.

The industry of growing this long-staple cotton was started in the Salt River Valley of Arizona, and has since spread to the Yuma Reclamation Project in California and Arizona, the Gila Valley of Arizona, and the Imperial, Palo Verde, and San Joaquin Valleys of California. The crop has increased in value from $44,000 in 1912 to $6,000,000 in 1917, and the area planted for this year's harvest, 86,500 acres, is more than double that planted last year.

It is said that the belief is still prevalent that the American-Egyptian cotton-growing industry is as yet too small to be worth serious consideration and that while the product is of value there is not enough of it to be worth going after in the market. Also the transportation rates from the Southwest were so much higher than from Egypt that the American product was at a commercial disadvantage. These conditions have been reversed, however, since the war began.

In 1913, the latest prewar year, only 3,800 acres were planted. This year 86,500 acres were seeded, and at least 70,000 acres will be harvested, the difference representing the proportion that may be abandoned before picking time, the abandonment being due, in most cases, to the failure to get a good stand.

Possibilities of Industry.

Eventually the area in this country may be expected to reach 300,000 acres, giving a total yield of 250,000 bales of the Egyptian type; this prediction is subject to the general proviso that the prices of fiber and seed remain somewhat near the present levels, and that labor may be had for picking so large an area.

Part of the needed labor promises to be supplied from the ranks of Indians in Arizona, and some of the labor has come from Mexico. Yet much more effort will have to be made than in the past to get labor for harvesting this year's crop. In short, now and in the future, the limiting factor will be labor, if prices keep up.

Community Effort Needed.

Community effort is needed both in growing and marketing. Some incentive toward organized effort has been furnished by contracts with tire manufacturers who have financed the growing of the crop in return for an option on it; and at least three farmers' cooperative associations have been formed, one near Yuma, one in the Imperial Valley, and one in Fresno County, Cal.

An effective selling organization on a cooperative basis needs to be established, transportation difficulties overcome, and a recognition gained for the intrinsic worth of this long-fibered cotton, which already meets a real requirement in the long-staple cotton market.

An association should also arrange for producing and maintaining seed supplies that will insure standard varieties of the best type, free from admixture with inferior types. The Pima variety seems the most desirable so far developed, and pure strains should be made available for much larger plantings than have yet been made from this seed.

CAPACITY OF NATION'S GRAIN DRIERS.

The combined capacity of all grain elevators in the United States equipped with driers on March 1, 1918, was 3,345,330 bushels for every 24 hours. This is shown in a recent publication of the United States Department of Agriculture, Document 12, of the Bureau of Markets, which is a report of a survey made by the Bureau to ascertain the number and capacity of the Nation's grain driers. The publication includes a list of the firms with their daily capacity, their location, and railroad connections. The elevator having the largest capacity is located in Chicago, and is capable of handling 216,000 bushels of grain every 24 hours. The capacity, or number of bushels a drier can handle in 24 hours, is based upon the time required to make 5 or 6 per cent reduction in the moisture content of corn of average quality.

It is beyond question that for passenger haul the public roads are used to a greater extent than the railroads. These impressive conditions have been created within the span of a single generation.

PICK COTTON EARLY AND PICK IT CLEAN, MAKE QUALITY HIGH

Market Conditions Force Down Price of Low-Grade Product.

Crop Gathered Late Likely to Be Damaged by Weather—Abnormal Demand Results in Wide Price Differences.

Cotton producers throughout the cotton belt are urged by the Bureau of Markets of the United States Department of Agriculture to pick their cotton as early and as clean as possible, under existing labor conditions, and to protect it properly from the weather after it is picked. This is in order that there may be no larger portion of low-grade cotton than absolutely necessary. Ginners also are urged to gin cotton as efficiently as possible, using cleaning devices when desirable.

Cotton picked late, says a statement by the bureau, in all probability will encounter rainy and damp weather and frost, which cause spotted, off-color, and low-grade cotton and often weaken the staple. There is a scarcity of high-grade cotton and a great demand for it.

Quality Essential Now.

A large part of the cotton carried over into the season of 1918–19 is of low grade, the bureau cotton specialists have found. Under normal conditions foreign trade furnishes outlets for cotton of low grades. As these outlets are largely closed by the war, such cotton sells at a price much lower in comparison with the price of middling cotton than is usual under normal conditions.

On the other hand, there has been created an abnormal demand for cotton of the better grades, with a resulting scarcity of such cotton. The Government under war conditions is using large quantities of cotton goods, and many mills are running entirely or in part on Government orders. Such mills, in order to make suitable fabrics for Government purposes under war conditions, are using the better grades of cotton. Our export trade at present also requires an unusually large proportion of high-grade cotton.

Prices Vary Widely.

The abnormal demand for cotton of the better grades and the subnormal demand for cotton of the lower grades has affected the stability of the cotton market and has resulted in extraordinarily wide price differences between the higher and lower grades.

Early and clean picking and the proper ginning and care of cotton not only will result to the individual producer's financial advantage, says the bureau's statement, but also will help to stabilize the cotton market and thereby will be of very great benefit to the trade and to the entire country during the present emergency.

Weevils Starve Rather Than Force Their Way Through Good, Whole Corn Shucks

Weevils, which cause losses of thousands of bushels of corn every year in the South, will starve rather than force their way through good shuck covering. This was determined in laboratory investigations conducted by specialists of the United States Department of Agriculture who made a number of tests to determine the merits of shucks as a means of preventing damage to ear corn. The department specialists suggest that in the selection of seed corn this fall, attention be given to the choice of ears having well-formed, extended shucks. A report of the investigations is contained in a recent department publication, Bulletin 708.

What Tests Showed.

Field investigations showed 43 per cent more weevil infestation in corn with poor shucks than in that having good shucks without worm holes. Storage investigations showed 93 per cent more weevil infestation in corn with poor shucks than in that with good shucks without worm holes. It was found that there are other advantages in having ears well protected by shucks. The tests showed 3 per cent more rotten, 16 per cent more discolored, and 18 per cent more worm-moldy ears in poor shucks than in good ones.

The so-called good shucks in these investigations were not ideal, according to the bulletin, but only better than the average. Corn on which the shucks failed to extend beyond the tips of the ear, or, if extending beyond the tip, did not close tightly, thus offering an opportunity for insects to enter along the passage used by the silks, were placed in the class having poor shucks. The investigations made it clear that the farther the shucks extended beyond the tips of the ears, the more effective is the protection against causes of damage including earworm. This suggested the possibility of having a shuck extension long enough to be entirely effective against ear damage.

Reduce Damage to Grain.

Most corn growers fail to realize that by improving the shuck covering on their corn by selection, they may reduce the amount of damage done to the grain. Growers generally consider only the ear and kernels when selecting seed. Some observers have concluded that since weevils are able to eat the hardest corn, they would also cut their way through most resistant shucks. Others have observed that earworms may cut holes through a large percentage of the protecting shuck and that weevils will enter through these holes, and they have concluded from this that shuck covering can not be made a practicable means of protection. The investigations referred to, however, prove that this is not true. Where injury from weevil is probable, store shuck-protected ears in their shucks and feed or sell the unprotected ears as early as possible.

SILAGE SOLVES WINTER FEED PROBLEM.

With silage in the ration, dairy cattle can be kept in the condition of health common to animals on pasture. The digestive system of a cow is well suited for the utilization of large quantities of green grasses and other coarse succulent material. Silage is palatable, and no other feed will combine so well with dry hay and a little grain to produce maximum, economical results.

The preservation of the mature corn crop or the saving of one which for any reason must be harvested before maturity by placing it in silos is deservedly increasing in popularity. About 40 per cent of the total food material in the corn plant is in the stalks and leaves. When only the ears are harvested nearly one-half of the crop is lost; on the other hand when the crop is put into the silo the losses are very small. When drought, frost, or insects attack a field of corn before it is ripe the entire crop may be lost unless a silo is at hand in which to preserve it.

No feed crops can be so successfully harvested under widely varying conditions as those that are put into the silo. Only in case of drought or frost is it necessary to rush the filling of the silo; rain or dew on the forage does not injure the silage.

THE county agent as the Farm Bureau manager is the captain of America's organized soldiers of the soil.

SUBMITS TO "COOTIES," AIDS UNCLE SAM'S FIGHTING MEN

Former Chicago Official Lends His Body in Government Research.

Department of Agriculture Entomologists Seek Preventives and Exterminators for Parasites That Spread Disease in War Zone.

There is in Washington a man inconspicuously doing his bit, or his all, for his country by serving as a "host" for body lice, the "cooties" of the war zone. He is cooperating, in a very personal and intimate degree, with entomologists of the United States Department of Agriculture, who are striving, under the direction of the Council of Research of the Council of National Defense, to find preventives and exterminators for the pests that not only annoy and irritate American soldiers, but that spread trench fever and other diseases among them.

This man formerly served the city of Chicago in a public capacity. He has a son with the American Expeditionary Forces in France, and when he volunteered to be a subject in the experimental work of the entomologists, he said he was willing to do anything that would help out the boys over there. Valuable data in regard to the control of the "cootie" have been obtained from the parasites living on his body, and moving pictures of them have been taken through a microscope. The pictures are to be magnified and shown at Army camps before scientists and Army officers engaged in delousing work.

What Scientists Aim to Do.

The entomologists, in addition to watching these particular "cooties" and others confined in glass tubes and other places, are testing chemicals to learn their destructive action on lice, their effect on human bodies, and their penetration of clothing. Also, they are cooperating with Army officers in testing laundering and delousing processes. They are trying to add to the knowledge of how to repel, kill, or drive away the tiny parasites that to many of our soldiers have proved more troublesome than the Huns or the bullets of the Huns.

One of the scientists of the Bureau of Entomology, Department of Agriculture, also is serving as a host for the parasites, but in a more restricted sense than the Chicago man. His "cooties" are confined under the glass top of a wristlet, much like a wrist watch, and they pass their existence, from the egg stage to the dead adult, on the skin of his arm, and can not move to any other spot. Through the glass cover the entomologist can watch the "cooties" as they emerge from their shells and go through all the stages of their life cycle.

Extensive governmental efforts to devise ways of overcoming the parasitic evil are under way. Similar efforts have been made and are being made in practically every country that has large armies in the field. The war centered attention of entomologists upon body lice, which previous to the conflict had not received as much attention as scientists believe they deserve.

Not Yet Serious in Camps Here.

The "cootie" has not yet appeared in numbers at the camps in this country, but if it should do so military authorities expect to be ready to deal with it. Men serving for long periods in the trenches, or at other places where bathing and disinfecting facilities are not available, are the principal sufferers. Delousing stations, where thorough bathing, hair-clipping, and disinfection of clothing can be done, have been established in the war zone.

The moving pictures that are to be part of the campaign against "cooties" show how the louse comes into existence, how it passes into the nymph stage, and from that to the adult, and how it propagates its species. They also will show lesions caused by the bites of the parasites, and how to find the eggs and the insects themselves in the folds of clothing. These will be added to films to be taken under the direction of the War Department, which will show a delousing station, the devices used, and a company of men ridding themselves of their unwelcome visitors.

To gather and correlate all the scientific knowledge available on the subject, Bureau of Entomology scientists have organized a study class that meets weekly and sends reports of its findings to Army officers and others engaged in eradication of parasites.

President Wilson Urges Generous Support of Schools in War Time

President Wilson urges generous support for schools of all grades during war time. In a letter to Secretary Lane approving the Bureau of Education's plan for an educational campaign this summer and fall, he says:

"I am pleased to know that despite the unusual burdens imposed upon our people by the war they have maintained their schools and other agencies of education so nearly at their normal efficiency. That this should be continued throughout the war and that, in so far as the draft law will permit, there should be no falling off in attendance in elementary schools, high schools, or colleges is a matter of the very greatest importance, affecting both our strength in war and our national welfare and efficiency when the war is over. So long as the war continues there will be constant need of very large numbers of men and women of the highest and most thorough training for war service in many lines. After the war there will be urgent need not only for trained leadership in all lines of industrial, commercial, social, and civic life, but for a very high average of intelligence and preparation on the part of all the people. I would therefore urge that the people continue to give generous support to their schools of all grades and that the schools adjust themselves as wisely as possible to the new conditions, to the end that no boy or girl shall have less opportunity for education because of the war and that the Nation may be strengthened as it can only be through the right education of all its people. I approve most heartily your plans for making through the Bureau of Education a comprehensive campaign for the support of the schools and for the maintenance of attendance upon them, and trust that you may have the cooperation in this work of the American Council of Education."

Undoubtedly many mowing machines have been or are about to be scrapped, though still capable of doing several years of useful work if only a small percentage of their original cost were expended upon them for repairs. The proper time for overhauling these machines is during their period of inactivity and before the rush of spring work.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended September 7, 1918:

Typical Specifications for Nonbituminous Road Materials. Department Bulletin 704.

Results of Experiments with Miscellaneous Substances Against Bedbugs, Cockroaches, Clothes Moths, and Carpet Beetles. Department Bulletin 707.

The Pink Bollworm with special Reference to Steps taken by the Department of Agriculture to Prevent Its Establishment in the United States. Department Bulletin 723.

Clearing Land. Farmers' Bulletin 974.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

GARDENS AND POULTRY YARDS FIND PEACE IN GOOD FENCES

No Reason Why All Should Not Help Produce More Food.

Department of Agriculture Asks for Cooperation Between Neighbors—Need of Nation Calls for no Disputes.

The redress of the home gardener against the inroads of the neighbor's chickens will depend on the laws of the State or ordinances of the town or city in which the gardener lives. In some States owners are liable for damage done by stock running at large; in other States the person who wishes to grow a crop must fence it against depredation. In most of the eastern States owners of stock are required to keep it under fence.

These facts are set forth by the United States Department of Agriculture in response to queries by gardeners who have neighbors raising chickens that harvest the products of Liberty gardens before such products are mature. The department is not prepared to say which type of food-raising is the more profitable and praiseworthy, but says that both can go hand in hand if there are proper fences. Whether the poultryman or the gardener must provide the fence depends upon local statutes or ordinances, and the rights of the case would be determined under general principles of law.

It is related that a Liberty gardener and a Victory poultryman lived side by side. One morning the poultryman saw the gardener industriously digging.

"What are you doing?" asked Egbert.

"Replanting some early peas," replied Cornelius.

"But that looks like my brown leghorn lying beside that hole."

"It is," said the gardener; "my first planting of early peas is inside of her."

The legal authorities of the department say that the chicken-and-garden question, far from being a subject of humor, is undoubtedly a serious one, and has probably led to as much trouble, dispute, and ill-feeling between neighbors as any other single cause.

The department believes, however, that in war time there will be more of a principle of cooperation and a theory of live and let live. With everyone interested in a maximum war-time food production some way can usually be found out of the difficulties that may arise through the proximity of chickens and gardens.

SKILLED FARM LABOR TO BE IN DEFERRED DRAFT CLASSES

(*Concluded from page 1.*)

work regularly 8 hours or more? Are the burdens of farm women increased? In other words, do the farm people, responding to many patriotic appeals, make, as compared to other occupational groups, a very heavy draft upon their reserve strength and upon their children?"

Subsequent Details of Plan to Defer Agricultural Workers

Under the rules of the War Department for executing the new draft law, special provision is made for informing the district boards in regard to farm-labor requirements in order that necessary food production may be maintained, says a later statement issued by the Department of Agriculture. The statement continues:

In the new draft the district boards are charged with the duty of putting into deferred classes those persons who are more likely to further the war by remaining in civilian occupations than by entering the Army. Accordingly, three advisers are to be selected for each district board—one for agriculture, one for labor, and one for other occupations. The agricultural adviser will be appointed by the board upon the recommendation of the Secretary of Agriculture. The advisers are not members of the board, but may when invited attend its meetings.

How Agricultural Adviser Will Aid.

The duties of the agricultural adviser will be to furnish to the board facts relative to farm-labor requirements, not only of his own district, but of the whole country. He should be the repository of all facts having relation to the deferment of agricultural workers, whether these be necessary farm laborers, managers, or operators. He will be expected to advise the district boards as to a shortage or surplus of necessary farm workers for any given district, as well as for the entire Nation. Such information will be supplied to the advisers by the Department of Agriculture. This will make it possible to have necessary workers transferred from districts in which they may not be necessary to other districts in which they are sorely needed.

The adviser may also concern himself with individual cases that come before the district board. He will have the right, under certain conditions, to examine the questionnaires and other records in the files of the local board for the purpose of ascertaining whether persons entitled to deferred classification have actually claimed it. In case he finds the names of such registrants he may file for them a claim for deferred classification with the district board, which, in turn, may require the local board to certify the questionnaire and record of any such registrants for consideration. Reasonable time will be given for the purpose of obtaining information and supplying the affidavits required. If a local board determines to consider a case for deferred classification because a registrant is engaged in a necessary occupation, notwithstanding no claim for deferred classification on that ground has been made, it shall indorse the recommendation on the questionnaire of the registrant and forward it to the district board having jurisdiction. The district board will thereupon consider the case and proceed to classify the registrant, notwithstanding the fact that no claim for deferred classification by or in respect of the registrant has been made.

Claims in Behalf of Necessary Employees.

A further duty with which the adviser is charged is to confer with employers of necessary farm workers, and to instruct them as to their right under the regulations to file a claim for deferred classification in respect of any registrant who has failed or refused to file a claim for deferred classification in his own behalf. This, in the opinion of the War Department, is a very important matter. The apparent injustice of placing many registrants in Class I is often due to the fact that employers have failed to make claims for deferred classification on behalf of necessary workers. It is to avoid a repetition of this trouble that farmers should see that all of their necessary employees, whether sons or other laborers, of the draft age have made for them just claims for deferred classification.

One important explanation is made in the new selective service regulations in connection with the expression "skilled farm laborer." The questionnaire provides deferred classification for the "necessary skilled farm laborer in necessary agricultural enterprise." The new regulations provide that in Class II shall be placed any registrant found to be engaged in a "necessary" agricultural enterprise, and found to be necessary to such enterprise in the capacity of a farm laborer—"especially fitted for the work in which he is engaged." This quoted phrase constitutes an explanation of what is meant by "skilled" as applied to farm laborer. The expression will make easier the determination of the status of many registrants.

War Service in Right Place.

The purpose in the appointing of advisers is to place men where they can do most to help win the war. These advisers will be able to help greatly the district boards to keep in agriculture the necessary workers. These workers, whatever may be their inclination to enter military service, should stand ready to serve in any capacity in which they can contribute most toward a speedy ending of the war. In order that this may be done a frank statement should, in each case, be made to the boards. It is believed that it will frequently require as much courage on the part of many men to remain in their civilian occupations as to waive deferment.

This effort to keep men in industry, rather than to send them to the camps and the trenches, should not be abused so as to permit the slacker to escape military duty. The necessities for raising an Army are paramount. Every man that can be spared will be needed and needed badly to bring the enemy to his senses. The adviser should be assisted in every possible way by every legitimate agricultural interest to find the men that can be spared for military duty, but also to keep those that are essential to the maintenance of a proper food supply.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items about Big War Jobs That Are Helping American Farmers to Feed Nations

Entomologists in "Cootie" Fight.

Scientists of the Bureau of Entomology, United States Department of Agriculture, are conducting extensive work designed to find a preventive or exterminator for body lice, the "cooties" of the war zone. They are working to add to the knowledge of how to repel, kill, or drive away the tiny parasite on which world-wide attention was centered by the war. The scientists, in addition to watching "cooties" as they pass through the stages of their existence, are testing chemicals to learn their destructive action on lice, their effect on human bodies, and their penetration of clothing. Also, they are cooperating with Army officers in testing laundering and delousing processes.

Irrigate to Fight Drought.

"Water on our lands during 1917 and 1918 would have meant thousands of dollars to this county, to the farmers, and to the city people," the executive committeeman in charge of irrigation in the Flathead County Farm Bureau, Montana, writes. The Flathead County Farm Bureau is determined that the drought conditions of the present season shall not be repeated and has made irrigation one of its major lines of work for the year. Different localities will handle the problem in different ways. Irrigation in this valley will make it possible for the farmers to change from straight grain farming to the practice of a diversified system employing live stock as well as the necessary crops.

Training Camps for Boys and Girls.

As a part of the war program in boys' and girls' club work in the South more than 25 four-day training camps for club members have been held during the summer in counties of West Virginia under the direction of W. H. Kendrick, State agent of boys' clubs, and Miss Sadie R. Guseman, in charge of girls' clubs in the State. Each camp is open to all club members of the county in which it is held, and is under the leadership of the local home-demonstration agent and the county agricultural agent. Instruction is given in the growing of tomatoes, potatoes, and corn, and the care of poultry and pigs. Canning and preserving are taught as well as first aid. Athletic contests and other organized sports and amusements are included in a recreation program. The camps are developed along the line of the fourfold idea and are planned to encourage a well-rounded development of the four H's—head, hand, heart, and health.

Farm Bureaus Stimulating Food Production.

More than 10,000 of the most progressive farmers of Idaho are backing the Nation's war program in agriculture through the medium of the farm bureaus organized in 34 of Idaho's 36 agricultural counties. Thirty-one of these counties also employ county agents. In the northern part of the State emphasis has been given to increasing food production by demonstrations in clearing land which have been conducted in cooperation with the county farm bureaus. In Franklin County greater food production is assured by the reclamation of certain districts through drainage. Here again the county agent and farm bureau have taken the leading part in securing the assistance of the National Government. Grasshoppers and other pests have caused much loss of food in the past, and the campaigns carried on against them by the county farm bureaus have proved most successful.

Liberty Kitchen Turns into Cannery.

The Liberty Kitchen at Orlando, Fla., has had to be turned into a regular cannery to meet the tremendous demand there for canning instruction. The large number of visitors and the enthusiasm of the farmers and housewives who are cooperating in this line of conservation show that the community has caught the canning spirit. Canned products are being put out daily by the hundred quarts and the women who have received instructions from the home-demonstration agent at the kitchen are working now at home, following Government directions. Constant demands for bulletins on all kinds of subjects are received. Many of these, coming from people in the northern States, show that the tourists of last winter have not forgotten the demonstration kitchen.

Boy Scouts Find Black Walnut.

About 15,000,000 feet of black walnut timber has been located and its existence reported to the Forest Service by the Boy Scouts since they were called upon by the President to assist the Government in locating this timber for gunstock and propeller material. The Boy Scouts send the reports to the Forest Service, where the information is compiled and then forwarded to the War Department. The Government itself is not buying the walnut, but sends out the information to manufacturers working on Government contracts.

Ridding the Range of Ravaging Rogues.

It is estimated that the Bureau of Biological Survey of the United States Department of Agriculture is saving annually over $5,000,000 worth of live stock for the ranchers of the Rocky Mountain section as a result of its intensive campaign against predatory animals, which has been in progress during the past three years. During this period 60,458 coyotes, 8,085 bobcats, 1,829 wolves, 201 mountain lions, and 137 bears have been trapped or shot, and many other animals have been poisoned. The income from the sale of pelts of animals killed by Government hunters to protect live stock during the last year will aggregate approximately $100,000. This work is of special importance, because the cattle and sheep which are already on the range producing meat, wool, and leather are afforded protection, and thus the actual sources of these essential commodities are being conserved for market. Furthermore, clearing the range of predatory animals is making conditions more favorable for stocking the grazing areas to full capacity and for improving the quality of the breeding stock.

Women's Club Markets Own Products.

The women of a Tennessee home demonstration club are marketing their own vegetables, small fruits, eggs, poultry, butter, and cottage cheese with the help of the local home-demonstration agent. A table has been secured for them at the entrance to the market house where the products are attractively displayed. Since none of the women had experience in dressing fowls for market, the agent called a meeting at one of the homes and showed them the proper way to kill and dress poultry. The club members are making a specialty of week-end baskets. Ordinary peck baskets are used and are

filled to order to meet the tastes of the purchasers.

Accredited Dairy Herds Listed.

Federal and State cooperative control work for the eradication of tuberculosis of cattle has been in progress long enough to justify publication of the results, and the Bureau of Animal Industry has issued list No. 1 of herds officially accredited as free from tuberculosis and of herds that have passed successfully one test with a view to certification. If the status of any of the accredited herds should be changed, notice is to be furnished promptly to State officials. Additional lists are to be published from time to time.

Cattle Tick Work again Breaks Record.

The cattle fever tick is entitled to think that the world's energies have not been concentrated on the western battle front. The tick is having a rather busy time, for July, like June, set a new record in the eradication work of the Bureau of Animal Industry. In July the number of cattle dipped for ticks totaled 6,680,232—more than were ever dipped in any single month since the work began in 1906.

Club Rivalry Aids War Program.

Rivalry for State championships in boys' and girls' club work acts as a tremendous incentive in getting club members to grow and conserve food in connection with the war program. During the past eight years the champions of each State have been elected into the National All-Star Fraternity, an exclusive organization for champions in agriculture and home economics pursuits, and open only to boys and girls between the ages of 10 and 19. All-star members are known by the fraternity button, a four-leaf clover with an "H" on each leaf—the emblem of the club work. This insignia gives to the champions a mark of distinction which at this time indicates special war service.

Kill Rodents and Save Crops.

An amount approximating $50,000 has been raised in Montana to carry on cooperative campaigns under the supervision of the United States Department of Agriculture, to kill rodents, such as prairie dogs and ground squirrels, which have proved very destructive in grain fields. This money is used to buy grain and poison, needed in the preparation of poisonous bait, which is purchased through the cooperation of the Department at cost. This material is sold to farmers at cost and thus the money becomes a sort of revolving fund for the purchase of more grain and poison. In this way the $3,000 raised in Sheridan County has revolved until $21,000 worth of material used in the preparation of poison has been purchased. The department is this year conducting a campaign to destroy rodents on approximately 11,000,000 acres in North Dakota alone.

Labor Savers Made in Tennessee.

Home labor savers have been made in large quantities by Tennessee women working under home demonstration agents during the past year. Time-saving and labor-saving equipment is doing much to help the farm woman meet her war problems. Agents in the State report the making under their supervision of the following: 263 fireless cookers, 92 iceless refrigerators, 1,558 flytraps, 47 kitchen cabinets, 19 floor mops, 25 wheel trays, and 26 ironing boards. Water systems were put in 60 homes and shower baths in 7 more. During a fly campaign 1,333 houses were screened.

Progress of Cottage Cheese Campaign.

Over 580,000 pounds of cottage cheese has been made and consumed in homes as a result of the campaign to increase the making and consumption of cottage cheese of good quality undertaken last spring by the Dairy Division cooperating with the States Relations Service of the United States Department of Agriculture. Educational work has been done in 40 States, largely through the instrumentality of the women home-demonstration agents. Over 2,000 meetings and demonstrations have been held before 100,000 people. As a result 41,499 persons have been encouraged to take up the manufacture of cottage cheese. Not only has the manufacturing end been demonstrated but uses in cookery have also been explained. The campaign, the results of which will continue to spread, has shown the people of the United States a means of utilizing skim milk in the home and creamery in the preparation of a valuable food.

OUR greatest achievement is not in men, or guns, or ships, or railroad yards. Our greatest achievement is that we have changed our minds. We had thought that here between these two oceans we were aloof from the world. We now understand that we have a part in it; we now understand that though our eastern boundary in geographical terms is still the shore line of the Atlantic, our eastern boundary in terms of national welfare and the liberty of our people is that line from Belgium to Italy where our flag flies.—Clarence Ousley.

Visit Gipsy Moth Laboratory.

About 125 members of the Massachusetts Tree Wardens and Forestry Association and interested visitors from New York, Rhode Island, Connecticut, Vermont, Maine, and Canada recently inspected the experimental work in controlling the gipsy moth and the brown-tail moth, which is being carried on at the Gipsy Moth Laboratory, at Melrose Highlands, by the Bureau of Entomology, United States Department of Agriculture. The visitors saw the methods of rearing and handling the different parasites of the two insects which are being introduced from Europe and Japan. Explanations and demonstrations were given in connection with other important work, such as the use of improved material for banding trees, and the results of studies which had been made on the feeding habits of the caterpillars, and preference for different kinds of tree growth. A spraying demonstration was given with the large motor-truck sprayers used by the Bureau of Entomology for spraying infested areas to prevent the spread of the gipsy moth. It is possible, with the sprayer used in the demonstration to send a solid stream of spraying material through 4,000 feet of 1½-inch hose at an elevation of 800 feet, throwing the poison 100 feet from the ground and thus reaching the tallest trees on the highest hilltops that occur in the infested area.

Mississippi Encourages Wood Distillation.

The Mississippi Legislature has passed a bill exempting from taxation for a period of five years all wood distillation plants that may be built in the State. The purpose of the bill is to encourage the wood-distillation industry in Mississippi.

KEEP VEGETABLES FOR WINTER.

It should be the aim of every boy and girl to keep the surplus vegetables from the war garden for winter use. Potatoes, beets, carrots, parsnips, turnips, salsify and late cabbage may be kept by storing them in the cellar, or in banks or pits. Tomatoes, peas, and string beans may be canned. Dry beans may be kept by gathering and storing in a dry place. By storing, canning, or drying all surplus vegetables every boy or girl can help the Nation solve the food problem. The United States Department of Agriculture, Washington, D. C., has published bulletins on canning, drying, and storing garden products. Write for copies of them. They are free.

MANY MORE WAR GARDENS, MOVEMENT COMES TO STAY

Department Specialists Find Production This Year Is Much Larger.

People Who Have Worked Soil in Emergency to Continue After Peace Comes—Figures Show Growth.

War gardens as a whole, including home, children's, and community gardens, were more numerous and far more productive this year than last, according to the Department of Agriculture. This is the concensus of opinion of those who have been working on the garden problem, and is based on specific reports of the department's agents, and upon the observations of its specialists throughout the country.

While it is reported that seedsmen sold less seed to home gardeners this year than they did last, this does not mean that there are less gardens or smaller plantings. Amateurs learned last year that they bought too much seed. Some of this seed was undoubtedly kept over and many gardeners saved seed from last year's crop for planting this season. A few gardeners going to work in 1917 with more enthusiasm than experience decided not to plant this year, but a great many more who did not make gardens last year made them this season.

Estimates Not Reliable.

Estimates of the number of gardens vary, and there are no figures other than conjectures. Department garden specialists say that an estimate of 10,000,000 home gardens is conservative, but admit that this figure represents only a good guess.

Specific examples show how the garden movement has grown. Before the war, according to the garden leader of the District of Columbia, there were not more than 5,000 gardens in the Federal district which contains the capital of the country. Now there are 28,000, including school gardens, with a marked increase in 1918 over 1917. Chicago has 483,000 gardens, 140,000 of which are home gardens, 90,000 children's gardens, and 238,000 community gardens. Oklahoma City had more than 13,000 gardens last year.

Gardens on Farms.

It must not be supposed, either, that city man and suburbanite constituted the only classes that needed admonition to start gardens, and the only ones that heeded the admonition. The county agent of Oswego County, N. Y., maintains that the majority of the farmers in his county have not had gardens and that much of the effort toward more and better home gardens should be expended on the farmer rather than on the city man.

In the South last year more than 315,000 new gardens were started through the efforts of farm demonstration agents, and this figure takes no account of many gardens established as an indirect result of the work of the Department of Agriculture. Of even greater significance has been the great amount of gardening done through the cooperation of industrial enterprises. Many of the great lumber mills and cotton mills of the South have encouraged their employees to have home gardens even to the extent of furnishing the ground and the plowing, and allowing time off with pay for the planting, cultivation, and harvesting of the crops. In Bibb County, Ala., mine companies furnished land, seed, and fertilizers. In Calhoun County, the same State, home gardeners cooperated with the military authorities at Camp McClellan, Anniston, in growing food for the camp mess. The city of Mobile has 4,000 war gardens. On many railroads, particularly in the South, the unused portion of the right of way has been given up to gardens made productive by section hands and construction gangs. There has been a decided movement for fall gardens and even for year-round gardens where there is a long growing season and the "fall food acre" of the South has been a direct result of the Government's campaign for more home food product.

Gardening Come to Stay.

These facts are significant as showing a tendency, and are an index of activities in every State of the Union. The most hopeful aspect of the gardening situation, according to the department officials who are willing to venture an opinion, is the unanimity of their belief that the home and community garden has come to stay, and that those who have undertaken the work as a wartime measure will continue it after victory has been won.

Their opinion is based, they say, upon the advantages which gardeners have found—cheaper vegetables, better quality and greater freshness, zest and healthfulness in gardening as recreative occupation, and the growth of community spirit and action through a common ground of interest.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for preparator in nematology, for both men and women, on October 2, 1918. Two vacancies in the Bureau of Plant Industry, Department of Agriculture, will be filled from this examination. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

SAVE LABOR BY SEED-CORN SELECTION.

Saving seed corn saves labor. This is one of the main reasons for careful seed-corn selection, says the United States Department of Agriculture, which points out that just as much labor is often employed in producing nubbins as would be required to grow full ears. The more bushels of corn to the acre, as the result of good seed, the less the labor required to grow each bushel.

To save labor during the preparation of the ground, and the planting, cultivation, and harvesting of the crop in relation to the quantity of corn grown, the wise farmer will now devote special attention to selecting a two-years' seed supply. He will not make seed gathering a merely incidental operation, connected with harvesting or shucking, but will devote his whole attention to the selection of the best ears as they grow in the field, under the conditions the crop has to contend with. By thus using his time this fall he will save the labor of many men all next season.

In other words, says the department, the stalk of corn that produced well under ordinary field conditions, in competition with other stalks, is likely to transmit high yielding ability to its seed. Where field seed selection results in doubling the acre yield, the result is practically equivalent to cutting down by one-half the labor required to produce the crop.

HOME GROWN FEED FOR DAIRY COWS.

To feed the dairy herds well, with the minimum of grain, substitutes must be furnished for at least part of the grain. With a good pasture during the entire summer and with rich corn silage and first-class legume hay for winter feeding, good dairy cows will yield a heavy flow of milk at a minimum of cost. Clover, alfalfa, cowpea, soy-bean, velvet-bean or other legume hay, when fed with good silage, will maintain a medium production of milk at a relatively low cost. Under ordinary farm conditions it is not to be expected that legume hay will take the place of the entire grain ration, but if it is substituted in part, large quantities of grain will be released for human food.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI SEPTEMBER 25, 1918 No. 8

EARLY FALL IS A GOOD TIME TO START A FLOCK OF SHEEP

Ewes Can Be Procured More Readily; Get Ready for Breeding.

Inexperienced Raisers Should Begin With Grade Ewes of Best Class and Pure-Bred Ram. Limit Work at First.

Sheep husbandry on farms can do much to relieve the threatened inadequacy of the wool production in the United States. The farmer who will start and care for a new flock this fall will have a patriotic part in meeting the country's need for more wool to equip our soldiers and sailors.

Late summer or early fall is the most favorable time to make a start in sheep raising. Ewes can be procured more readily at this time, and when purchased can be kept on meadows, grain-stubble fields, or late-sown forage crops, to get them in good condition for breeding. Experience with the ewes through fall and winter will also render a beginner more capable of attending to them at lambing time. It is seldom possible to buy any considerable number of bred ewes at reasonable prices.

Selection of Stock.

The inexperienced sheep raiser should begin with grade ewes of the best class available and a pure-bred ram. The raising of pure-bred stock and the selling of breeding rams can best be undertaken by persons experienced in sheep raising. The selection of the type and breed of sheep should be made by considering the class of pasture and feeds available, and the general system of farming to be followed, along with the peculiarities of the breeds, and the conditions and kind of feeding and management for which each has been especially developed.

It is highly advantageous for all, or a majority of the farms in a neighborhood, to keep the same breed of sheep, or at least to continue the use of rams of the same breed. After a decision has been made as to a suitable breed, the aim should be to obtain ewes that are individually good, and that have as many crosses as possible of the breed selected. With such a foundation and the continuous use

(*Continued on page 4.*)

AMERICAN AGRICULTURAL COMMITTEE REACHES ENGLAND ON WAR MISSION

The United States Department of Agriculture announces the arrival in England of a committee of men familiar with food production and agricultural organization and activities in the United States. The personnel of the committee is as follows:

Dr. W. O. Thompson, chairman, president Ohio State University, Columbus, Ohio; Mr. Carl Vrooman, Assistant Secretary of Agriculture; Mr. R. A. Pearson, president Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa; Mr. T. F. Hunt, director of the Agricultural Experiment Station and dean of the College of Agriculture, University of California, Berkeley, Cal.; Mr. D. R. Coker, farmer and member of National Agricultural Advisory Committee, Hartsville, S. C.; Mr. Wm. A. Taylor, Chief Bureau of Plant Industry, U. S. Department of Agriculture; Mr. George M. Rommel, Chief Animal Husbandry Division, Bureau of Animal Industry, U. S. Department of Agriculture; Mr. George R. Argo, specialist in cotton business methods, Bureau of Markets, U. S. Department of Agriculture; Mr. John F. Wilmeth, administrative assistant, Bureau of Markets, U. S. Department of Agriculture.

The Committee will secure general information regarding food production conditions in England, France, and Italy, so that, when they return, they will be able to reveal the needs more effectively to the leaders of agriculture in the United States and to farmers generally. They will also study agricultural problems in England, France, and Italy, including the use of machinery and the assignment of labor in farming operations, the livestock situation, the depletion of herds and the probable extent to which Europe may call on this country for live stock to replenish herds, the seed situation and the probabilities of securing supplies from Europe, and similar matters.

FARM WOMEN KEEP BOOKS AND KNOW HOME EXPENSES

Simple Accounts Tell How Much of a Living Land Furnishes.

Household Arithmetic Has Become Essential to Economy—How to Classify Money Paid Out for Purchases.

The modern farmer's wife is no longer satisfied with the old accepted idea that "The farm gives us a living," but she gets out her pencil and paper and asks, "How much of a living does it give us?"

Generations ago neither the farm nor the farm household had any but minor dealings with the outside world. Under such conditions the need for accounts was slight. But those conditions no longer exist. The farm household, though still in many cases receiving its major support in farm products consumed at home, purchases far more extensively than ever before from outside sources. Farm household accounts have become essential to economy.

Household expenses on the farm are very intimately associated with the business of the farm itself. The farm normally supplies much material which otherwise would become a household expense. The household, in turn, very often furnishes board for farm labor, which would otherwise be a farm expense. Merely from the standpoint of keeping track of household expenses as related to the farm business, household accounts are desirable and should serve to supplement and round out farm accounts.

Two Ways of Keeping Records.

There are two methods of keeping a record of household expenditures. One is to record the purchases or money paid out without classifying the expenditures. The other is to classify when the record is made.

The first method is very simple, requires no special form, and gives all nec-

essary information regarding expenditures. At the end of the month or at the end of the year the total expenditures readily may be determined. In order, however, to know the totals for each kind or class it will be necessary to make up a monthly summary in which the items will be distributed in different columns, by classes. This extra work at the end of each month (or at the end of the year) may cause discouragement and neglect of classification, with the result that the greatest good that could be derived from the records is not realized.

Under the second method, in addition to being entered all together in one column, the items are classified in separate columns. This method has the same advantages as the first method and the additional advantage of allowing for the distribution of the items of expenditure to the proper classes without the inconvenience of turning to some other page. The distribution may be left to moments of leisure if the farmer is busy at the time the entry is made. When the page is filled the next page is begun, the top line next to the heading being reserved for the total carried forward from preceding page. The items may be totaled at the end of the month and these totals carried to the summary page at the end of the book.

Books Not Costly.

The kind of book to use is not important. An ordinary blank daybook or ledger book with a stiff cover may be bought at a reasonable price. If the vertical rulings in the book do not serve the purpose others may be inserted with a pen or pencil. Accounts are sometimes kept in a book having small pages. A small page, however, is soon filled, is often crowded, and the information is scattered over too many pages for convenience in recording and studying the expenditures.

In order to simplify accounts it is well to group expenditures. If all individual items were listed in separate columns, it would require a great amount of detail work. The distribution of the different household expenditures into groups is largely a matter of individual viewpoints. The following 10 divisions should be satisfactory for the average farm family: Animal food, fruits and vegetables, cereal products, other groceries, clothing, household furnishings, running expenses, advancement, incidentals, and savings.

BE THRIFTY.

Accounts will show you how.
Know where every dollar comes from and where it goes.
Study your record book and plan ahead.
Buy carefully to-day and give to Uncle Sam to-morrow.
Save food, fuel, and clothing.

BUREAU OF MARKETS TO HELP MOTOR-TRUCK MEN DEVELOP RURAL ROUTES

The Bureau of Markets of the United States Department of Agriculture has announced its readiness to enter into cooperative agreement with operators of rural motor-truck routes who desire to work more closely with the Government in developing, stabilizing, and standardizing this business. Operators who agree to work according to most approved practices, and to conform to the general requirements of the Bureau of Markets are to be given the advantage of receipt of advice and information developed through the bureau investigations.

Large metal signs for display on trucks will be furnished to operators meeting the requirements. These signs will read, "The owner of this truck is cooperating with the Bureau of Markets, United States Department of Agriculture." The operator also will be privileged to use this sentence on his stationery and in advertising.

How to Get Signs.

Requests for application blanks, to be used in obtaining the signs, should be made to the Chief of the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

Through its cooperation with motor-truck operators the Bureau of Markets hopes to make it easy to place in proper hands such advice and information as it may secure; to act as a medium for distribution of information among operators; to stabilize the rural motor business by requiring adherence to certain business practices, and to give to reliable operators the business advantage of working cooperatively with the Bureau of Markets.

Requirements For Cooperation.

Truck operators who desire to cooperate with the bureau must agree to maintain dependable service and schedules; charge just rates based on cost plus a reasonable profit; keep satisfactory records of operating costs and furnish certain of them to the bureau; use uniform bills of lading approved by the bureau, and provide adequate insurance for shipments.

No attempt to exercise arbitrary authority or to insist on practices detrimental to proper and profitable conduct of motor-truck routes will be made, says the announcement of the bureau.

LET HOGS TRANSFORM FORAGE INTO SOUND AND SOLID PORK

Raiser Who Provides Pasture Gets Most Profit From Herd.

Hogging Down Crops Cuts Cost of Fattening, and Labor Expense as Well—No Waste, Despite Objections.

The hog raiser, whether he has 2 or 200 pigs, who provides pasture for them whenever possible is the one who makes the production of pork most profitable.

The raising of rapid-growing, heavy-yielding forage crops, such as soy beans, cowpeas, clover, etc., to be fed green to live stock instead of depending upon the ordinary pasture crops has long been advocated by the United States Department of Agriculture. Hogging down such crops has been practiced most successfully by experienced hog raisers, who find that this method, aside from reducing the cost of producing pork, also reduces the labor materially. When hogs are permitted to harvest these crops for themselves repeated demonstrations have shown that there is no waste, which is an objection that is often raised by those who have not tried the plan.

Let Hogs Harvest Corn.

Hogging off corn has been tested thoroughly at several agricultural experiment stations and by practical hog raisers, and the practice is strongly recommended. Corn alone is not a satisfactory hog ration. Where the crop is to be hogged off, some other crop should be combined with it. Pumpkins seeded at the same time as the corn, soy beans or cowpeas seeded in the same or in alternate rows with the corn, and rye, rape, or soy beans seeded at the last working of the corn have all been used with satisfactory results. With one of these combinations no other grain ration is needed, but if there is no other forage growing in the cornfield, some concentrate, such as tankage, cowpea meal, or middlings, should be fed. It is advisable to start the hogs gradually, for a few days, with a little green corn before turning them into a field of corn to hog it off. The corn is ready for grazing when the grain is dented or glazed. It will take about one month for 14 to 16 hogs, weighing 150 pounds each, to hog off an acre of corn which would yield 35 bushels. It is not advisable to let the hogs have access at any time to more than they will clean up in 10 days.

Alfalfa is perhaps the best of all green forages for hogs. It starts growth early

(*Continued on page 4.*)

President's Proclamation Requires Buyers for Packers to Obtain Federal Licenses

Operations of packers on live-stock markets are made subject to Federal license in the same manner as activities of other stockyard dealers, in a proclamation issued by the President under authority given by the Food Control Act. Licenses must be obtained by September 19. The President's action supplemented the proclamation of June 18, 1918, under which stockyard firms and dealers were licensed. Regulatory powers under the new proclamation will be administered by the Secretary of Agriculture through the Bureau of Markets.

According to the proclamation all individuals, partnerships, associations and corporations, except those exempted by the food control act and those required to be licensed under the proclamation of June 18, engaged in the business of handling, buying, selling or otherwise dealing in live or dead cattle, sheep, swine or goats, in or in connection with places, establishments or facilities commonly known as stockyards, consisting of pens or other inclosures and their appurtenances in which cattle, sheep, swine or goats are received, held or kept for sale, feeding, watering or shipment, are now required to secure licenses.

Applications for licenses must be made to the law department, license division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

Text of President's Proclamation

Whereas, under and by virtue of an act of Congress entitled "An act to provide further for the national security and defense by encouraging the production, conserving the supply, and controlling the distribution of food products and fuel," approved by the President on the 10th day of August, 1917, it is provided, among other things, as follows:

"That, by reason of the existence of a state of war, it is essential to the national security and defense, for the successful prosecution of the war, and for the support and maintenance of the Army and Navy to assure an adequate supply and equitable distribution, and to facilitate the movement of foods, feeds, fuel, including fuel oil and natural gas, and fertilizer and fertilizer ingredients, tools, utensils, implements, machinery, and equipment required for the actual production of foods, feeds, and fuel, hereafter in this act called necessaries; to prevent, locally or generally, scarcity, monopolization, hoarding, injurious speculation, manipulations, and private controls affecting such supply, distribution, and movement; and to establish and maintain governmental control of such necessaries during the war. For such purposes the instrumentalities, means, methods, powers, authorities, duties, obligations, and prohibitions hereinafter set forth are created, established, conferred, and prescribed. The President is authorized to make such regulations and to issue such orders as are essential effectively to carry out the provisions of this act."

And whereas it is further provided in said act as follows:

"That from time to time, whenever the President shall find it essential to license the importation, manufacture, storage, mining, or distribution of any necessaries, in order to carry into effect any of the purposes of this act, and shall publicly so announce, no person shall, after a date fixed in the announcement, engage in or carry on any such business specified in the announcement of importation, manufacture, storage, mining, or distribution of any necessaries as set forth in such announcement, unless he shall secure and hold a license issued pursuant to this section. The President is authorized to issue such licenses and to prescribe regulations for the issuance of licenses and requirements for systems of accounts and auditing of accounts to be kept by licensees, submission or reports by them, with or without oath or affirmation, and the entry and inspection by the President's duly authorized agents of the places of business of licensees."

And whereas it is essential in order to carry into effect the purposes of said act, and in order to secure an adequate supply and equitable distribution, and to facilitate the movement of certain necessaries hereafter in this proclamation specified, that the license powers conferred upon the President by said act be at this time exercised to the extent hereinafter set forth.

Now, therefore, I, Woodrow Wilson, President of the United States of America, by virtue of the powers conferred on me by said act of Congress, hereby find and determine, and by this proclamation do announce, that it is essential in order to carry into effect the purposes of said act, to license the importation, storage, and distribution of certain necessaries to the extent hereinafter specified.

All individuals, partnerships, associations, and corporations (except as exempted by said act of Congress and except those required to be licensed pursuant to my proclamation dated June 18, 1918, under said act), engaged in the business of handling, buying, selling, or otherwise dealing in live or dead cattle, sheep, swine, or goats in or in connection with places, establishments, or facilities, commonly known as stock yards, consisting of pens or other inclosures, and their appurtenances, in which cattle, sheep, swine, or goats are received, held, or kept for sale, feeding, watering, or shipment, are hereby required to secure licenses on or before September 19, 1918, which will be issued under such rules and regulations governing the conduct of the business as may be prescribed under said act.

The Secretary of Agriculture shall carry into effect the provisions of said act, and shall supervise and direct the exercise of the powers and authority thereby given to the President, as far as the same apply to the said business, including the purchase of live or dead cattle, sheep, or swine in or in connection with stock yards, as a part of the business of packing fresh, canned, or cured beef, pork or mutton licensed under the provisions of the proclamation of October 8, 1917, and to any and all practices, procedure, and regulations applicable thereto authorized or required under the provisions of said act, and in this behalf he shall do and perform such acts and things as may be authorized or required of him from time to time by direction of the President and under such rules and regulations as may be prescribed by the President from time to time. All departments and agencies of the Government are hereby directed to cooperate with the Secretary of Agriculture in the performance of the duties hereinbefore set forth.

Applications for licenses must be made to the law department, License Division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

Any individual, partnership, association, or corporation, other than as hereinbefore excepted, who shall engage in or carry on any business described herein, without first securing the license required therefor, will be liable to the penalties prescribed by said act of Congress.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done in the District of Columbia this sixth day of September in the year of our Lord 1918, and of the independence of the United States of America the one hundred and forty-third.

WOODROW WILSON.

By the President:

ROBERT LANSING,

Secretary of State.

THE HOG IS A FOOD-PRODUCING MACHINE.

The hog should be considered as a machine for turning feedstuffs into pork. The more quickly this result can be accomplished the more profitable it is for the owner. It is a common belief that if the grain fed to hogs on pasture is limited, more forage will be eaten and cheaper gains produced. This belief is not substantiated by the feeding tests that have been conducted at several agricultural experiment stations. A full feed of grain to hogs on good pasture not only produces the most rapid gains, but usually gives the most profitable results. When account is taken of the saving of labor and the reducing of loss from disease by marketing animals at 7 to 9 months of age instead of keeping them for a year or more, the advantage is almost always with the more rapid growth. The self-feeder system which permits hogs to eat grain at will either in pastures or dry lots is becoming more and more popular in the corn-belt States, and there seems to be no valid reason why self-feeders should not prove equally successful in all parts of the country.

LET HOGS TRANSFORM FORAGE INTO SOUND AND SOLID PORK.

(*Continued from page 2.*)

in the spring. If kept moderately grazed or if mowed at intervals it keeps green all summer. Alfalfa will not stand close grazing with hogs. If grazed, sufficient acreage should be allowed so that at least one, and preferably two, cuttings for hay may be made each season. Such light grazing does not seem to injure the stand.

Red clover, crimson clover, soy beans, cowpeas, rape, and, in the South, velvet beans and peanuts are also valuable forage crops which the hogs can harvest for themselves.

Cheapest Pork From Pasture.

The cost of pork is reduced materially by the use of pasture and forage crops, but it is desirable to feed some grain in addition. In certain sections of the country, where the pastures are luxuriant, mature hogs are maintained in an apparently satisfactory condition on pasture alone. The practice should not be followed in the case of young growing pigs because they will become thin and stunted if compelled to live on pasture alone. Hog raisers differ widely regarding the quantity of grain that should be fed to hogs while on pasture. Some feeders give the hogs all the grain they will consume. Others feed a daily ration equal to about 2 or 3 per cent of the live weight of the hog. Still others allow pigs to run on pasture, feeding a 1 per cent grain ration.

A distinction should be made between such forage crops as soy beans, cowpeas, peanuts, and velvet beans, which are hogged off when the seed is mature or nearly mature, and green forage, such as oats, sweet potatoes, and clover. With the former not so much grain is needed, and what is fed, usually corn, is merely to balance the ration, while with the latter a well-balanced grain ration gives the best results. The self-feeder may be used safely, however, with all crops. Healthy hogs that have as much feed as they will consume give good returns for all they eat. The foregoing statements apply to growing hogs which are to be marketed for pork. Mature brood sows, where no great increase of weight is desired, are often kept on green forage alone, except those with suckling pigs. Gilts and sows with suckling pigs should receive in addition to the forage a grain ration of such quantity as they will clean up readily when fed two or three times a day.

The carrying capacity of the various supplementary forage crops varies widely, according to the growth of the crop. As a rule, it is safe to graze them at the rate of ten to fifteen 100-pound shotes to the acre. A greater number will shorten the grazing period, and fewer animals will lengthen it.

EARLY FALL IS A GOOD TIME TO START A FLOCK OF SHEEP.

(*Continued from page 1.*)

of good pure-bred rams of the same breed, the flock will make continuous improvement. In looking for ewes of desired types and breeding, it will often be found impossible to get them near at home at a reasonable price. Ewes from the western ranges can be obtained directly from a stock-yard market. For the most part the range ewes are of Merino breeding. First-cross ewe lambs, and less often older stock bred on the range and sired by rams of the down or long-wool breeds, are sometimes obtainable. These, or even the Merino ewes, furnish a foundation for the flock that can be quickly graded up by using rams of the breed preferred. The lambs from Merino ewes and mutton rams grow well and sell well if well cared for, but the yield is less than when ewes with some mutton blood are used. The sheep from the range are less often infested with internal parasites than are farm sheep, and in the large shipments there is opportunity for closer selection.

Yearling or 2-year-old ewes are preferable to older stock. Ewes with "broken mouths," that is, those that have lost some of their teeth as a result of age, can be purchased cheaper than younger ones, but are not good property for inexperienced sheep raisers.

In buying ewes, particularly those from the range, it is desirable, when possible, to examine the udders to see that they are free from lumps that would prevent the ewes from being milkers. It is necessary to guard also against buying ewes that are useless as breeders, because of the ends of the teats having been clipped off at shearing.

Size of Flock.

Persons wholly inexperienced with sheep will do well to limit the size of the flock at the start. A beginner can acquire experience quite rapidly with 8 or 10 ewes. It is very doubtful, however, whether anyone should make a start with sheep unless the arrangement of the farm and the plan of its operation allow the keeping of as many as 30 ewes, and in most cases 60 or more will be handled better and more economically than a very small flock.

The economical disadvantage of a very small flock lies in the fact that the hours of labor are practically the same for a dozen or 20 ewes as for the larger flock. The fencing to allow desirable change of pastures or to give protection against dogs is about the same in either case, so that the overhead charges per ewe are much smaller in the case of the larger flock. Furthermore, the small flock on a farm having large numbers of other animals is unlikely to receive the study and attention really needed or that would be given to one of the chief sources of the farm income.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces the postponement from September 18 to October 2, 1918, of the open competitive examination for scientific assistant in weed investigations, for men only, scheduled to be held throughout the United States for filling vacancies in the Department of Agriculture, at entrance salaries ranging from $1,200 to $1,620 a year.

The maximum age limit of 50 years, originally fixed for this examination, has been eliminated. Applicants must have reached their twentieth birthday on the date of examination. Applications, when properly executed, should be filed with the Civil Service Commission, Washington, D. C., in time to arrange for the examination of the applicant.

The commission also announces that for the continuous open competitive nonassembled examinations for clerk qualified in accounting (male and female), salary $1,000 to $1,800, and for clerk qualified in statistics (male and female), salary, $1,000 to $1,800, the age limit has been reduced from 20 to 18 years.

Applicants for these examinations must have reached their eighteenth birthday on the date of making oath to the application.

Silos Should Be Filled to Capacity—Save Labor With Modern Methods

On account of the labor shortage, neighborhood cooperation in silo filling should be highly developed during the current fall, the United States Department of Agriculture suggests, that all the silage crops should be saved without loss, while all silos should be filled to capacity. Five or six or more farmers who own silos in one community should combine their working forces into a crew which should rotate from farm to farm as the corn becomes ripe enough. Such an arrangement resulting from the interchange of neighborhood farm labor will minimize the expense of housing the silage crops. Furthermore, the cooperation developed between the adjoining farms will permit many stockmen to fill their silos at low cost, whereas these silos might have to remain empty if only the labor supply on the individual farm were available.

It is essential that corn should not be cut for ensilage until it is mature and through the dough stage, as repeated demonstrations have shown conclusively that corn in this condition is at the peak of nutrient value. The bugaboo about frosted corn being wholly unsuitable for ensilage is a fallacy, as corn which has been damaged with frost can be converted into very good ensilage if it is cut shortly afterwards. In the case of badly frosted corn, however, there occurs a considerable loss of leaves.

Watering the Chopped Feed.

In case the corn is excessively dry and wilted at the time of silo filling, water should be run through a rubber hose into the cutting box and blower during the filling process so that the chopped feed may be wet thoroughly and rendered succulent for future feeding. In extreme cases where it is impossible to saturate the corn completely in this manner, and where water pressure is available, a second hose is sometimes carried over the top of the silo so that the water falling on a board inclined against the side of the silo and moved at regular intervals serves efficiently to thoroughly moisten the forage.

Labor in loading the corn on the wagons in the field may be reduced by the use of an elevating attachment, several standard types of which are now on the market. This device is attached to the corn harvester and deposits the bundles of corn as they are cut on the wagons which may be driven opposite the machine. If it is desired to start the binder several hours ahead of the ensilage cutter, this attachment is not used, as then the corn may be dumped on the ground and from there loaded by hand. Such a practice gives the corn harvester a chance to gain a handicap over the wagons that are hauling so that the corn elevator can be used efficiently.

In view of the current high prices of grain, the specialists of the United States Department of Agriculture suggest that, in many instances, the ears may be profitably snapped or husked and only the fodder converted into silage. By the practice of this system the silo will still provide a wealth of cheap, succulent roughage, while the farmer will be able to use the ear corn from the silage field for other feeding purposes.

Sealing the Silo.

Sealing of the silo after the structure is filled is too often neglected. There are a number of practical methods of topping off the silo so as to minimize waste and spoilage. A common practice is to level the silage and then to tramp over the top thoroughly for 20 or 30 minutes every day for about a week in order to eliminate air pockets near the top of the silo and to thoroughly compact the mass of feed. Then oats may be sown after the top of the ensilage has been thoroughly soaked with water. Another practice is to remove the ears of corn from the last two or three loads which are fed into the silo so that the top surface silage is composed entirely of stalks and leaves which are not so valuable and do not represent a large loss of feed when the top 5 to 6 inches of silage spoil. Many farmers report reduced losses of silage when the silo is opened for feeding use where they have covered the ensilage after it has been leveled and packed with tar roofing paper which is weighted down and held in place by means of short plank. Under such conditions the silage keeps well for three or four months before the silo is opened with only a loss of about two or three inches of ensilage at the top of the silo.

The specialists of the department recommend the use of boys in the silo for tramping and packing the ensilage during the filling process as conservative of man labor as well as of silo space. Under this arrangement one man to handle the distributor pipe with 3 or 4 boys in an average 14 to 16 foot diameter silo will not only pack away the feed so that it will all be saved, but they also will render available the maximum tonnage capacity of the silo.

With feed as high in price and as scarce as it probably will be before the winter feeding season has elapsed, now is the time to house all forage that is available. This is why it is recommended that every silo be filled to capacity as with ensilage more costly than ever before and the cost of silo construction extremely high, it is only practical management to gain as great use as possible from this farm convenience.

GET FULL VALUE FROM ENSILAGE CORN.

Cutting corn for the silo before it is ready is too general a practice, warns the United States Department of Agriculture. The full feeding value of the crop can not be obtained until the soft dough stage is reached. The lower leaves will then be dead, some of the husks will have turned brown, and the ears will be hard, but the stalks and upper leaves of the plants will still be green and succulent. Cutting before this time is like marketing cattle or hogs before they are finished.

"Stars and Stripes" Sees Trouble Brewing for Rats in the Trenches

The Stars and Stripes, the newspaper published for the American Expeditionary Forces in France, recently printed the following regarding the work of former members of the scientific staff of the Biological Survey, United States Department of Agriculture:

"As you may have heard 5 or 11 times already, this is a scientific war. Whenever an annoyance or an actual menace to the Army is discovered, scientific steps are taken to annihilate the pest.

"Even the cootie is doomed. It is said that the research work is in charge of an officer to be designated as a cootenant. But this story is about rats.

"The rat, figuratively, is about to be trapped. A year or so ago there was a man—a member of the Biological Survey—who had great success in exterminating the prairie dogs out in Kansas and Colorado. When America came into the war, somebody in the War Department suggested that maybe this scientific exterminator of prairie dogs was so good at that job he might be able to solve the rat problem in the trenches. So they ordered him over here to give the rats a critical and microscopic look.

"He came over and went up front and studied the rodent. He studied it by and large, hither and yon, here and

there, and through and through. He found out what it liked for supper, and its favorite flower and 'how it cared for its young,' and he doped out a way to lessen its ravages if not actually to exterminate it.

"He found out, too, that not all the rat trouble is at the front. A large part of it is at the base ports, where the rats get into the big storehouses, and cause damage to the food and clothing waiting to go to the front. Often the rats go right along up with the food and clothing.

"The rat specialist made his report and recommended that some men be sent to assist him. It is said that his request has been granted and that a successful barrage against the rat already has been laid down."

Oklahoma Cattle-Tick Dippings Show Aim to Banish Parasite

Expectations of the Bureau of Animal Industry, United States Department of Agriculture, have been justified by efforts at cattle-tick eradication work in Oklahoma. In July 1,015,000 cattle were dipped in Oklahoma, a number exceeded only by the dippings in Louisiana, which has State-wide work.

The cattle owners of Oklahoma, cooperating with the Department of Agriculture, are showing a disposition to make their State free of the cattle parasite just as soon as it can be done. They want to produce more and better cattle. They are following the advice of the Department of Agriculture, the United States Food Administration, and the State Council of Defense, all of which have lined up against the tick.

Conditions with which tick-eradication work in Oklahoma has had to contend are indicated in the following letter from the inspector in charge in that State:

"The distressing drought now obtaining all over the area in which tick eradication is being carried on in Oklahoma is commencing to retard that work in many localities. In some places it is necessary to haul water from 5 to 10 miles to charge dipping vats, and in a number of instances inspectors report that it is costing $20 each dipping to replenish the vats with water. Practically no feed crop of any kind will be harvested in much of the area. Notwithstanding these discouraging factors, however, it is still believed that three-fourths of the territory, under systematic management, will be released from quarantine by December 1."

War's Demands Are Taking Black Walnut—This Is a Good Year to Plant the Trees

As a result of cutting to meet the almost world-wide demand for gunstock material the supply of black-walnut trees is rapidly diminishing over practically the entire range of the tree in the United States. Coupled with this warning, the Forest Service of the United States Department of Agriculture announces that the crop of walnuts is particularly heavy this year, so that there is a splendid chance to gather or buy seed for planting.

The very high lasting qualities of the wood, and the fairly rapid rate of growth of the tree, in good locations, make black walnut one of the most desirable trees to plant on the farm. Furthermore, it is admirably fitted to make unused portions of the farm productive; for small patches of rough, gullied, or other waste land, if the soil is good and not too thin or dry, are ideal planting places.

The method of planting black walnut is simple, and the return is likely to be considerable. There is probability of the timber's retaining its best value on the market. Moreover, in case it is not sold for lumber, the tree yields durable wood which may be used for posts and for a wide variety of purposes about the farm. The reason it is so prized for gunstocks is because it works readily in the turning lathe, takes a high finish, and does not splinter when struck by projectiles.

Range of Walnut.

The region where walnut growing is practicable extends from southern New England west to the Central States and south to South Carolina and along the northern portions of the Gulf States to Oklahoma. The finest growth takes place in the rich coves of the lower Appalachians and over the Ohio and central Mississippi basins.

In order to succeed well, walnut requires a rather good grade of soil; so no attempt should be made to plant it on poor thin soil or on hot dry exposures. Favorable situations for rapid development are on strong limestone soils, deep alluvial soils, and stony loam soils along the margins of highlands. Since the walnut tree requires a large supply of light, it may be planted successfully on open tracts recently cleared of old growth and on recently abandoned fields. In this respect it resembles black locust.

Black locust grows faster than black walnut, but in many localities is more or less subject to serious attack by a wood-boring beetle. Black walnut, especially the wood, is comparatively free from insect attack. A leaf-eating tent caterpillar does harm sometimes to the walnut foliage, but this is not serious.

In handling the walnuts, the best procedure after gathering is to stratify them in pits over winter and then plant them next spring just about the time germination begins. In eastern United States north of the Gulf States this is between March 1 and 25. Squirrels, chipmunks, and hogs are serious pests if present in numbers, and would more than likely succeed in making away with a majority of the nuts if they are planted in the fall. Small tracts, however, surrounded by cultivated fields, and other places where these animals are known to be scarce, might safely be planted in the early or late winter when labor is more easily secured than in the spring.

Planting is done by making a small hole with a mattock or hoe, dropping one or two nuts, and covering them with about 2 inches of fresh soil. A good spacing of the holes is 8 feet apart each way, or 8 by 10 feet, which amounts, respectively, to 680 and 545 holes per acre. The number of nuts required can easily be estimated on the basis of their quality, the area of ground to be treated, and the spacing.

Care should be taken not to plant under shade. However, where the trees in the woodlot are to be cut during the next year or two and are moderately open, planting might begin before the trees are cut, so as to get a start in advance of the removal of the overhead protection against early frosts and excessive drying of the soil in midsummer.

Plant Waste Spaces.

While the best results are usually obtained by completely preparing the soil and cultivating it for a few years after planting, farm owners should be aware of the possibility of starting hundreds of young walnuts in their wood lots and elsewhere at the expense of only a little labor. This will be a good step in the process of securing useful and money-making trees on parts of the farm which would perhaps otherwise be waste land, making no return at all to its owner for its cost in care and taxes.

Further information in regard to methods of storing and planting the nuts and earing for the woodlot can be obtained from the State foresters of the various States or from the Forest Service, United States Department of Agriculture, at Washington.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That are Helping The American Farmers to Feed Nations

Red Cross Pig Club Wins a Victory.

Ten thousand dollars to the Red Cross and 600,000 pounds of pork for our soldiers overseas is what the Red Cross Pig Club in Carroll County, Miss., has contributed to the Nation, according to a report received by the United States Department of Agriculture from O. F. Turner, county agent. The club has 3,000 members, and will ship 30 cars of hogs to market. "No county in Mississippi," says the report, "has ever before seen such an array of porkers as we now have in Carroll. The whole county is spotted with hogs of the finest type. Red Cross pigs are on every hill and in every hollow. People who never had any confidence in such things before are studying feeds and using tankage and self-feeders. We have pigs that weigh 400 pounds, with litter mates that won't weigh 100. Some of our hogs have gained 118 pounds in one month."

Secretary Visits Drought Sections.

Secretary Houston has gone to drought-stricken sections of the country to confer with field representatives of the Department of Agriculture in regard to making loans to farmers from the special fund of $5,000,000 set aside for that purpose. Prof. G. I. Christie and Mr. L. M. Estabrook, assistants to the Secretary, are supervising the work in the Northwest and Southwest, respectively.

Business Men Sing and Shock Wheat.

Sixty business men of Worland, Wyo., and the marching song "Where Do We Go from Here, Boys," are held responsible for the expeditious shocking of 200 acres of wheat near Worland in one recent evening. In the afternoon a farmer asked the county agent to furnish 20 volunteers. The county agent called on the Alfalfa Club, which had promised to help out any farmer behind in his work, and 60 men responded. The farmer's 100 acres seemed no job at all to the enthusiastic sixty, so they began singing the song. When they finished singing two other farmers found their wheat had been shocked, and that town help had piled more grain in the balance against the Kaiser.

Large Acreage of Wheat to be Sown.

Reports being received by the Bureau of Crop Estimates from all wheat-growing sections show that plans are being carried out to increase the acreage of wheat both in the winter and spring wheat belts. The work is being held up in some districts only because lack of rain has prevented fall plowing and preparation of the seed bed. Washington reports: "If rains occur, an extraordinarily large fall-wheat acreage will be sown." In Indiana much ground has been plowed for fall sowing, reports state, and an exceptionally large acreage is predicted. In Kansas great preparations have been made all over the State for fall sowing. Similar reports come from Missouri, Iowa, Montana, and other States.

Pits and Shells for Gas Masks.

The War Department has requested the boys' and girls' clubs of the country to help collect fruit pits and nutshells, the carbon in which is used in making gas masks. Contests have been suggested among the million club members by the United States Department of Agriculture and the State agricultural colleges, which conduct the club work, to see which member, which club, which district, and which State can deliver the largest amount of material in the shortest time. Each member should try to furnish at least 200 peach pits, or 7 pounds of shells—enough material for one mask. Since more and better carbon is secured from the pits of peaches, prunes, and plums than from other sources, boys and girls should make it their special business to see that every home in their communities saves the pits of these fruits. They should also visit community and commercial canneries, hotels, restaurants, and bakeries. In addition, seeds should be collected from dates and olives, and shells and whole nuts be saved from hickory nuts, butternuts, English and native walnuts, and hazelnuts. The material may be delivered to the local Red Cross headquarters, which are acting as central stations for collecting and shipping.

Crops Saved in Rodent Campaign.

More than $100,000 worth of crops were saved for the farmers in three Oregon counties by a rodent-control campaign carried on by county agents, in cooperation with the Biological Survey of the United States Department of Agriculture. Fifty thousand sage rats and more than 6,000 jack rabbits were killed in the June campaign in Crook and Deschutes counties, Oreg. Investigation has shown that each rodent does more than a dollar's worth of damage to crops in a season. On this basis the campaign saved the farmers of these two counties more than $50,000. In Douglas County a member of the county court has estimated that the campaign to control gray diggers has been worth more than $50,000 to the county.

Warnings of Fire-Breeding Weather.

Weather conditions favorable to the beginning or spread of forest fires have caused warnings to be issued by the Weather Bureau during the protracted drought in the West. The warnings are sent widely through the threatened regions by telegraph and mail. They are stamped on postal cards bearing cautionary legends.

Farm Bureaus Mobilize Labor.

One of the big State-wide problems which the farm bureaus of Idaho have been tackling is the labor situation. Farmers in general are abiding by the wage scale and are securing their help through the employment agencies developed by the farm bureaus in cooperation with the United States Department of Agriculture, the United States Department of Labor, and State. In Bonneville County since April 10 more than 1,500 men and 65 women have been placed on farms through the efforts of the farm-bureau labor agency. The results secured again demonstrate the effectiveness of this type of rural organization in handling the large problems which affect the farm interests.

Sell Skins of Stock-Killing Animals.

More than $78,500 has been turned into the United States Treasury since July 1, 1917, from the sale of skins of predatory animals which are destructive to live stock in the Western States. The Biological Survey of the United States Department of Agriculture has been carrying on a campaign to kill wolves, coyotes,

and other such animals which kill cattle, sheep, and horses on the western range. As a result of this campaign thousands of meat animals have been saved to increase the Nation's food supply. The sale of skins of animals killed during the fiscal year, which now remain unsold, will bring the amount to $100.000, according to officials of the department.

Farm Bureaus Fight Grain Destroyers.

Five per cent of Idaho's grain crops has been saved to feed our Army and our allies through a campaign against squirrels carried on by the farm bureaus and the Biological Survey of the United States Department of Agriculture in 20 counties in the southeastern part of the State. At an original outlay of $1.70, one member of the farm bureau in Bingham County brought to the farm-bureau office 2,487 squirrel tails. He received $49.74 as a bounty for this piece of war work. In Bear Lake County 136,500 squirrel tails were presented for bounty claims this spring, following the farm-bureau campaign. In Bonneville County a farmer covered his field with the poison, walked back over it in less than an hour from the time he started, and counted 278 squirrels, 6 rabbits, 10 rock chucks, and a good many field mice which had already been killed. Control work carried on on one or two farms is of little avail, because the squirrels from neighboring farms soon fill up the depleted ranks of their comrades. It is only when the undertaking is county wide and State wide that it is successful. Such campaigns have been made possible by the farmers' cooperation secured by the farm bureaus.

Storm Warnings on Lightships.

Warnings of storms approaching the Atlantic and Gulf coasts are to be disseminated from the lightships on these coasts by means of a system of flags in use by the Weather Bureau for this purpose. Arrangements to this effect recently have been made with the Lighthouse Board.

Idaho Farmers Pool Wool Shipments.

Two hundred and thirty thousand pounds of wool were handled by a farmers' wool pool organized with the help of the farm bureaus of Ada and Canyon Counties, Idaho, and the United States Department of Agriculture. The wool sold at 60 cents a pound, and the total amount received by the farmers was $76,400. The cost of handling was prorated and found to be three-thousandths of a cent a pound. The farmers feel that the pool saved them several thousand dollars. Members of this year's pool are planning for next year. They are learning something of the different grades of wool, so that next year they can grade and classify to better advantage. Through the help of the Lewis County Farm Bureau a similar pool was organized which shipped 10,000 pounds of wool to Salem, Oreg. Lewis County has always been regarded as a grain-growing county. Since the organization of the farm bureau, however, a great interest has been developed in sheep raising, and this wool pool indicates what measure of success has already been obtained. Ninety-five thousand pounds of wool were sold by the Jerome Wool Growers' Association, developed with the help of the farm bureau in Lincoln County.

Velvet Beans Solve Feed Problems.

The feed question is being solved in many parts of the South by abundant yields of velvet beans which were sown on a large acreage this year. Owing to the increased acreage in Georgia, that State alone could take care of 50,000 to 100,000 head of cattle from States where forage is scarce, according to a report recently received by the Bureau of Crop Estimates. Large quantities of last year's velvet beans also remain on hand and are being used extensively in feeding dairy cattle. In tests conducted by the United States Department of Agriculture on the Government farms at Beltsville, Md., it was found that velvet beans compare favorably with cottonseed meal, producing profitable gains when the beans are the sole concentrate of the ration; that a combination of corn silage and velvet beans forms a satisfactory ration for fattening steers for market; that it is more profitable to feed soaked beans than it is to grind them; and that more beans will be eaten if soaked before they are fed than if they are fed dry.

Volunteers Saved Kansas Wheat.

The 1918 Kansas wheat crop was harvested largely through the efforts of the farm bureaus and county agents of the State in definitely enlisting 30,000 harvest hands and distributing 90,000 more through the wheat belt. The farm bureaus and agents have cooperated in this work with the United States Department of Labor, the Council of National Defense, and other agencies. "Twilight Harvest Crews" was the name given to many groups of business men who agreed to go out for three hours' work in the fields in the evenings.

DO you know your county agent? If not, get acquainted with him. He is your friend. You are sure to like him.

More Tomatoes Contracted For.

As reported to the Bureau of Crop Estimates, 1,399 canning factories contracted for the 1918 production of 213,890 acres of tomatoes. In 1917 the same factories contracted for the production of 207,674 acres. One hundred and eighteen factories that did not report in 1917 have contracted this year for the production of 18,172 acres. Eighty-nine factories were reported as idle in 1918.

Gopher Control Saves Montana Grain.

Thousands of bushels of grain have been saved as a result of the gopher-extermination law put into operation in Teton County, Mont., through the concerted action of the county agent, the farm bureau, and the Biological Survey of the United States Department of Agriculture. It is estimated that with 10 gophers per acre 160 bushels of grain will be consumed from a quarter section. The law provides that in the case of State-owned lands not leased or private lands whose owners failed to put out bait an authorized county man may poison the gophers. Cooperation has solved the problem in Tetou County.

Miners' Families Save Wheat.

In St. Louis County, Minn., where 85 to 90 per cent of the population are foreign born, or have foreign-born parents, the county home demonstration agent of the United States Department of Agriculture and the State agricultural college has helped the women attack some of their biggest problems. A three months' campaign in wheat saving in six towns in this mining section resulted in reaching 3,000 families and saving 62 tons of wheat flour by the use of substitutes, in spite of the fact that opposition was met with at first from the Austrians and Finns, who had considered the use of white bread a mark of independence and prosperity. Figures collected during a recent child-welfare campaign in the county proved that, owing to improper diet, a large majority of the children were subnormal in height and weight. Fifteen hundred of these have promised the agent to drink a pint of milk a day, or to "howl till they get it." In August a two-day canning school was held in each town in the "Iron Range," at which selected leaders received special training which enabled them to pass on the instruction to the women in their communities.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — OCTOBER 2, 1918 — No. 9

SECRETARY HOUSTON VISITS SECTIONS HIT BY DROUGHT

Provision Made for Loans to Help War-Time Agriculture.

Conditions in Northwest Found Less Unsatisfactory Than Had Been Pictured—Spirit of Farmers Admirable.

The Secretary of Agriculture has returned from a 10-day trip through certain drought-stricken regions of the West and Northwest. He had an opportunity to observe the crop conditions through parts of Missouri, Nebraska, Montana, and North Dakota, and made a special inspection of the sections of Montana and western North Dakota which have suffered from two successive droughts. The President some time ago made available the sum of $5,000,000 to aid farmers in these and other similar sections who could not otherwise secure funds to purchase seed and who might have to sacrifice their farms and homes. Provision was made for loans to farmers of not to exceed $300 on not more than 100 acres, taking a lien on their crops as security.

During a part of the trip Secretary Houston was accompanied by Judge Lobdell, of the Federal Farm Loan Board, who is representing the Treasury Department, cooperating with the Department of Agriculture in the handling of the President's special seed-grain fund.

The Secretary found conditions in the Northwest, on the whole, less unsatisfactory than had been pictured. Certain sections, however, have suffered greatly. This is especially true of a few of the northern counties in Montana. The situation in North Dakota had improved since July and larger crops are being secured than were expected earlier in the season. A trip was made through the most distressed sections by automobile and an opportunity was afforded for discussions with farmers, bankers, and agricultural officials, and especially with Mr. G. I. Christie, who is immediately representing the Department in the Northwest, as well as with Senator O'Shea, president of the Federal Farm Land Bank at Spokane, and Mr. Quamme, president of the Federal Farm Land Bank at St. Paul.

Farmers' Spirit Admirable.

The spirit and determination of the farmers in the stricken sections are admirable, according to the Secretary; they are hopeful in spite of the experiences of the last two years. Many of them will

(*Continued on page 7.*)

AMERICAN FARMERS AND THE FOURTH LIBERTY LOAN.

The Fourth Liberty Loan will not fail for lack of support of American farmers. That is the answer I am giving to those who ask me what the response of the American farmer will be. I am making this confident assertion in the face of the fact that the American people are now being asked to make a colossal contribution to liberty—$6,000,000,000.

American farmers have demonstrated their patriotic support of the Nation's great war loans. One of the most striking features of the Third Liberty Loan was the support given it by the farming and rural populations. Not only did farmers purchase liberally of the bonds, but the rural communities as a rule were more prompt in completing their quotas of the loan than the larger cities. More than 20,000 communities in the United States subscribed or oversubscribed their quotas, many of them on the first day of the campaign. The majority of these were not cities but country districts. Iowa, a typical agricultural State, was the first to subscribe its quota.

But we now have a greater effort to make. Our largest war loan has been launched. It will tax our determination to defend our liberty and our Republic at all costs. Our armies in the field are fighting victoriously. The forces at home are now in an offensive that must not fail. "Without stint or limit" let us buy Liberty Bonds that we may attain our objective—a righteous and lasting world peace.

D. F. Houston

Secretary of Agriculture.

TELLS HOW HE FOLLOWED 1918 AGRICULTURAL WAR PROGRAM

Farmer Relates His Method of Carrying Out Production Schedule.

Example Given of Management Applied to Hastening Victory—Satisfied With Results and Is Ready for Next Plan.

"Out of 17 recommendations for agricultural war work I was able to follow closely 10, and those which were not followed referred to such crops as are not grown in my section or conflicted with the work I was doing."

This is the direct testimony of an Indiana farmer who made an earnest and conscientious effort to follow the program of war work laid down last spring by the United States Department of Agriculture in its circular entitled "Agricultural program for 1918, with special reference to spring planting and to live stock." He says he is satisfied with results on both the economic and patriotic phases and is ready to go forward on any plan the Government may recommend. As in most farm problems of the present day, labor is the limiting factor, but by having men interested in the war program as a United States service he has their full sympathy and enthusiastic help in carrying the work forward.

How a Young Farmer Works.

This is how he does it. He is a young farmer, handling more than 1,000 acres of land in three localities with only four reg-

ular men and some extra help during the busy seasons. He tells his experience as follows:

"I received the circular early in March and at once set out to follow it as closely as possible that I might increase the production as desired and that when the year was done I could say: 'I have been working on the war program and doing my part.' I followed it as closely as could be expected on an individual farm or farms conducted by one person. Out of 17 distinct divisions in the program—spring wheat, hogs, sugar, sheep and wool, dairy products, poultry, corn, oats, barley and flax, grain sorghums, potatoes, hay, forages, and pasture, beef animals, cotton, farm supplies, equipment and labor—my three farms were closely following 10. Those not followed either referred to such crops as are grown in other farming regions or to such production as conflicted with the work I was trying to follow.

"I had over 400 acres in spring wheat, a very substantial increase over 1917. Pork production was not only increased by breeding more sows and for two litters per year, but feeder hogs were bought and the soft corn of 1917 was fed to them, thereby preventing a waste of an unmarketable grain.

Starts Sheep Again.

"Then a flock of sheep was reestablished on one of the farms, all of the ewe lambs being retained for 1919. Incidentally, the small investment in sheep was doubled in 5 months' time by the lambs and wool.

"The program calls for a slight reduction of the corn acreage in favor of wheat and the increased production of hay and clover for forage. Oats were reduced for the same reason, and only the ground that could not be sowed to wheat was sowed to oats.

"Potatoes and garden truck were increased and not only supplied sufficient for the family use, but allowed for much canning and drying and some to sell.

"Our hay and pasture lands produce well when given the proper care. Part of our clover made over 2½ tons to the acre, and is worth about $25 a ton. Our hay production was an 80 per cent increase over 1917.

"On one of the farms a Shorthorn herd is kept, a herd that has been a money maker from the start. I have been increasing the number of cows as well as the quality, and now have a fine bull at the head of this herd. My young bull calves are sold to neighbors at farmer prices. While I think it strange that more of my neighbors can not see the advantage of a pure-bred bull over a grade bull, I can scarcely expect everyone to get on the right track at the same time; but in a few years I think all the farmers of the county will produce only calves sired by pure-bred sires.

Same Crops for Many Uses.

"With my corn I sow soy beans for a variety of crops and uses. Some are hogged off, others cut for silage; some beans are grown for seed alone, and others are to plow under as green manure. Not only am I trying to follow the program, but at the same time to use care in the selection of the crops that I may restore part of the plant food taken off by the crops being raised for Uncle Sam and the boys over there.

"These farms are operated with only four regular men, one on each farm. Of course, I work, too. The man on each farm receives a part of the crop produced and naturally each one is anxious to produce as much as possible for as small an expense as is consistent with good results. I plan the crop rotation and look after the purchasing of supplies, selling of products, and the maintaining of buildings and fences. Good records are kept of the operations and finances of each farm, and during busy times I manage to work in the fields with the other 'boys.' Because it is my special hobby, I give a good deal of attention to the feeding of the stock and care of the Shorthorns.

"Most of the work is done with four-horse teams or larger, and next year there will be added two-row cultivators on the second farm.

"In respect to other methods of labor-saving I have already found out that the greatest return from the labor is realized through the careful feeding of the crops produced and the production of crops that stock can harvest in the field.

"Therefore it is my intention to increase the stock on each farm and feed more of our crops, not only to cut the labor bill but to increase the labor return and the value of my land."

The Department of Agriculture gives this as an example of the workability of a farm program when it is applied with forethought and common sense. While the Federal authorities have as yet issued no definite war-work schedule for 1919, beyond the request for a record-breaking wheat acreage, it may be fairly assumed, says the United States Department of Agriculture, that farmers who have made practical application of the 1918 plan will be actuated by the same patriotic impulse that guided them during the productive season just past.

In the South, where usually the natural pastures are poor, it is the custom to cultivate the stump land instead of pasturing it. Another reason why stump land in the South is more generally cultivated than elsewhere is that most of the stumps there are tap-rooted and have few large lateral roots to interfere with tillage operations.

Accredited Dairy Herds Are Listed by Government; Tuberculosis Work Forward

Every dairy herd in the United States that on July 1 had been officially accredited as free from tuberculosis or that had passed successfully one test with a view to certification is listed in a publication just issued by the Bureau of Animal Industry, United States Department of Agriculture. Copies of the list are available for the use of State and municipal officials and private persons.

Certificates of freedom from tuberculosis are soon to be issued by the Bureau of Animal Industry to all the owners of the accredited herds. Certificate No. 1 is to go to the United States Soldiers' Home in the District of Columbia. The Holstein-Friesian dairy herd at this institution includes 134 registered pure-bred cows and is one of the oldest accredited herds in the United States.

Control with a view to the eventual eradication of tuberculosis in cattle is being accomplished by systematic efforts of Federal and State authorities in cooperation with cattle breeders' associations and herd owners.

A definite plan was adopted in 1917, whereby herds of cattle passing the prescribed number of official tuberculin tests should be certified or accredited as free from tuberculosis.

An accredited herd is one that has successfully passed two annual or three semi-annual tuberculin tests applied by regularly employed veterinary inspectors of the Bureau of Animal Industry or of the State where cooperative work is conducted, and has otherwise complied with the regulations governing the work.

The work is thought to have been in progress long enough to justify publication of the results. If the status of any of the accredited herds should be changed, prompt notice is to be given to the officials of the various States. Additional lists are to be published from time to time.

HUNTERS MUST OBSERVE BOTH U. S. AND STATE GAME LAWS

Shooting Must be Confined to the Time Allowed in All Regulations.

Sportsmen Advised to Study New Rules—Copies and Other Information Offered by Biological Survey.

In making their plans to shoot migratory waterfowl, hunters will do well to note the dates of open seasons under both Federal and State laws. This caution by the United States Department of Agriculture results from evidence of confusion in the minds of some sportsmen in regard to the opening of the season when the dates conflict under State and Federal laws.

The Federal law and regulations limit the seasons before and after which no one may shoot these birds. If a State law opens the season later or closes it earlier than the dates prescribed by the Federal regulations, the season in that State is just so much further shortened. Special attention is called to the fact that the Federal regulations do not authorize anyone to hunt or kill migratory birds contrary to the State law.

Some Dates Conflict.

In certain States, as for example, Illinois, Indiana, Iowa, Kansas, Kentucky, Missouri, and South Dakota, the season for shooting migratory waterfowl under the State law would open prior to the date of opening under the Federal regulations were it not for the fact that the Federal regulations supersede State laws in such case of conflict and prescribe for these States September 16 as the beginning of the open season.

Under the migratory bird treaty act regulations it is lawful to hunt waterfowl (except wood ducks, eider ducks, and swans, for which there is no open season), rails, coot, gallinules, Wilson snipe or jacksnipe, black-bellied and golden plovers, yellowlegs, woodcock, and mourning or white-winged doves during the open seasons prescribed by the regulations. The several States, however, are authorized under the treaty act still further to protect migratory birds.

Treaty Prohibits Sales.

Under the treaty act and regulations the sale of all migratory birds, other than propagated waterfowl, is prohibited throughout the United States except for scientific or propagating purposes. Maximum bag limits are also prescribed and, when permitted by State law, two days' limit of migratory birds may be shipped or transported from one State to another in a calendar week. Hunters are especially advised to familiarize themselves with the provisions of the new act and regulations, copies of which or other information concerning which may be had by communicating with the Bureau of Biological Survey, United States Department of Agriculture, Washington, D. C.

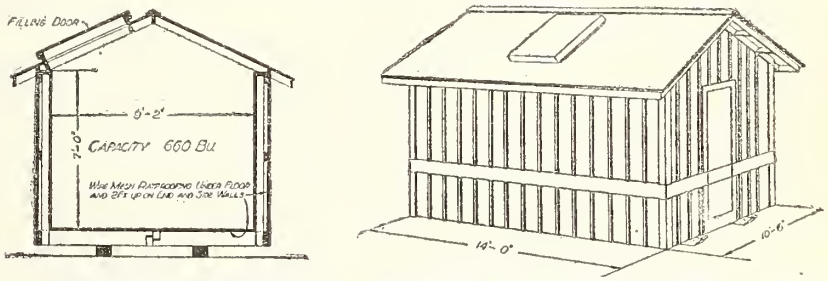
The organization of the department for enforcing the provisions of the new law is practically completed throughout the country, and the act grants the necessary police powers for its proper enforcement. The maximum penalties prescribed for violation of the provisions of the new act are $500 fine or 6 months' imprisonment, or both.

DON'T wait until winter before insuring a supply of fuel wood. Remember that thorough seasoning of wood requires from six to eight months and that removing only 50 per cent of moisture in the wood requires three months.

Here's a Portable Granary That a Farmer Can Build for Himself; the Plans are Free

Prohibitive prices due to a scarcity of galvanized material have vastly restricted the farm use of the standard commercial types of portable granaries. But the Division of Rural Engineering of the Bureau of Public Roads, United States Department of Agriculture, has come to the farmers' relief with working plans, specifications, and bills of material of a practicable portable granary which the individual farmer can build himself or can have built by a local carpenter. These plans will be sent free on request to any farmer in the United States.

This portable wooden granary is 10 by 14 feet in floor dimension and 94 inches to the eaves, with a capacity for 660 bushels of grain. It is built on skids or runners which permit of moving it from place to place by tractor or horsepower. It is of such a height that it can be set near the separator during the thrashing operation, so that the grain can be deposited directly into storage. This eliminates the services of one or two wagons and their crews, which otherwise would be necessary in transferring the grain from the machine to the storage bins. In addition, the portable granary is available for the storage of other farm produce or supplies when it is not needed as a grain container.



A PORTABLE GRANARY IS A HANDY CONVENIENCE ON THE GENERAL FARM.

WOOL CONSUMED IN AUGUST.

Manufacturers used a million and a half more pounds of wool in August than in July, 1918, August figures being 63,900,000 pounds, grease equivalent, compared to 62,300,000 in July. Monthly consumption has averaged about 67,000,000 pounds, grease equivalent, since January 1, 1918.

Stocks of wool consumed in August in pounds, by classes, as given by the Bureau of Markets, were: Grease, 37,769,216; scoured, 11,732,697; and pulled, 2,014,544. The reports show Massachusetts still leading in wool used, followed in order by Pennsylvania, New Jersey, Rhode Island, New York, New Hampshire, Ohio, Connecticut, and Maine.

According to the latest available information on wool-textile machinery equipment there are 6,377 woolen cards and 2,263 combs in the United States. The three firms whose reports are not included in the consumption figures have a combined capacity of 15 woolen cards and 9 worsted combs. This it is pointed out shows that the consumption report includes 99.7 per cent of the woolen machinery in the United States.

American-Egyptian Cotton Brings High Prices; Reports on Surveys of Crops

Increased prices being paid for American-Egyptian cotton grown in irrigated valleys of the Southwest—an industry fostered by the United States Department of Agriculture—with the amount of cotton ginned during the 1917–18 season are shown in reports of investigations and surveys by the Bureau of Markets of the department.

Of the favored Pima variety, which has largely superseded the original Yuma because it is more prolific, matures earlier, and has fiber about one-eighth inch longer, 5,108,553 pounds of seed cotton were ginned at Tempe, Ariz. Prices for the 1,368,822 pounds of lint obtained ranged from 60 cents a pound in a few cases to 80¼ cents in many. At Winterhaven, Cal., 3,097,236 pounds of Yuma seed cotton were ginned.

Reports on Gins.

Following are summarized reports of the Bureau of Markets or gins handling the American-Egyptian cotton:

During the season of 1917–18 there was ginned at the gin of the Tempe Cotton Exchange, Tempe, Ariz., a total of 3,778,680 pounds of seed cotton of the Pima variety, giving a total net weight of lint of 1,001,024 pounds. The lint outturn of the above cotton was 26.48 per cent. The total number of bales ginned was 2,112, the average net weight being 463 pounds per bale. The grades and staple lengths were as follows:

Grades:
- No. 1 or fancy.
- No. 2 or extra.
- No. 3 or choice.
- No. 4 or standard.
- No. 5 or medium.
- Below medium.

Staples:
- $1\frac{11}{16}$–$1\frac{3}{4}$, 61 per cent.
- $1\frac{5}{8}$–$1\frac{13}{16}$, 37 per cent.
- $1\frac{1}{2}$–$1\frac{7}{16}$, 2 per cent.

The average monthly price for cotton ginned at the above plant was as follows:

Month.	Price.
October	71.37
November	78.00
December	74.72
January	No sales.
February	68.00
March	69.20
April	72.55
May	74.07

The lowest price was 60 cents and the highest 80¼ cents, only 10 bales being sold at the low and 114 at the high.

The public gin at Tempe, Ariz., ginned both the Pima and the Yuma varieties. A total of 1,329,873 pounds of seed cotton of the Pima variety was ginned, giving a total net weight of lint of 367,798 pounds. The lint outturn of the above cotton was 27.66 per cent. The total number of bales ginned was 722, the average net weight being 487 pounds per bale. The grades and staple lengths were as follows:

Grades:	Per cent.
No. 1 or fancy	8
No. 2 or extra	62
No. 3 or choice	22
No. 4 or standard	5
No. 5 or medium	3
Staples:	
$1\frac{11}{16}$–$1\frac{3}{4}$	62
$1\frac{5}{8}$–$1\frac{13}{16}$	37
$1\frac{1}{2}$–$1\frac{7}{8}$	1

The average monthly price for cotton ginned at the above plant was as follows:

Month.	Price.
October	71.58
November	78.83
December	73.04
January	No sales.
February	No sales.
March	71.35
April	72.70

The lowest price was 62 cents and the highest was 80¼ cents, only 2 bales being sold at the low and 111 at the high.

At Winterhaven, Cal., the Winterhaven Egyptian Cotton Exchange ginned the Yuma variety only, and for the entire season ginned a total of 3,097,236 pounds of seed cotton, giving a total net weight of lint of 848,487 pounds. The lint outturn was 27.39 per cent. The total number of bales ginned was 1,757, the average net weight being 460 pounds per bale. The grades and staple lengths were as follows:

Grades (Yuma):	Per cent.
No. 1 or fancy	4
No. 2 or extra	31
No. 3 or choice	40
No. 4 or standard	18
No. 5 or medium	6
No. –, below medium	1
Staple lengths (Yuma):	
$1\frac{7}{16}$–$1\frac{1}{2}$	84
$1\frac{3}{8}$–$1\frac{7}{16}$	15
$1\frac{1}{4}$–$1\frac{5}{16}$	1

About 50 bales were sold early in the season for 73 cents. The bulk of the cotton, however, was unsold at the time this survey was completed.

Cooperates with Department.

The public gin at Tempe has cooperated with the Department of Agriculture and, with the assistance of the department, has had supervision of distributing the new Pima seed.

Bureau representatives who were present at the principal marketing centers during the ginning season continued their studies of the standardization of the Pima variety. During the season a large proportion of the crop was graded and stapled. In addition to data relating to standardization of grade and staple, information has been obtained as to the capacity of the various gins, the percentage of lint and seed yield, the grade and staple, and selling prices. These facts may be compiled later in bulletin form.

FLOODING BEST WAY TO FIGHT CRANBERRY PEST, SAYS DEPARTMENT

An abundant water supply, permitting flooding and reflooding at proper times, is the best remedy for insect injury in cranberry bogs, and when the sites of new bogs are to be chosen this should always be borne in mind. On cranberry land where the water supply is insufficient, spraying, sanding, and other measures will have to be used.

These are statements in Farmers' Bulletin 860, "Cranberry-Insect Problems and Suggestions for Solving Them," by H. B. Scammell, issued by the United States Department of Agriculture.

Cranberry bogs usually are flooded from December or January until April or May and are reflowed one or more times in the spring to eradicate insects. Occasionally a bog is flooded in the fall, immediately after picking, for a period of one or two weeks, a practice which aids materially in controlling the pests.

Helps Insect Control.

Insect problems may be disposed of with little difficulty where the bogs are constructed properly and ample provision is made for flooding and reflooding. Many bogs, however, have been laid without supplying adequate flooding facilities and hence the control of insects has become a serious problem for some growers. New insecticides are coming to the front and these may be of value in helping to control cranberry insects, but the bulletin says that too much stress can not be laid upon careful provision for a water supply when plans are being made for the development of cranberry land.

The cranberry has many insect enemies, but some of them are of importance only on dry bogs. The foliage is attacked by three species of "fireworms," the tipworm, spanworms, army worm and fall army worm and the cranberry flea-beetle; the fruit is eaten by the fruitworm, blossom worm, cranberry katydid, grasshoppers, and crickets; the vine is attacked by the girdler, toadbug, vine-hopper, spittle insect, a mealybug, and the Putnam and oyster-shell scales; and the roots are destroyed by the rootworm and white grubs.

The Department of Agriculture bulletin gives brief descriptions of these pests, their life histories and the means found most effective in each case in preventing their ravages and for destroying them.

Asparagus Can Be Grown all Winter By Forcing in Fields or in Cellars

Crisp, fresh asparagus tips can be obtained in a continuous supply this winter by forcing. For a large supply crowns of the plants may be forced in the field or in hothouses, while the small gardener may bed a few crowns in the cellar to furnish tips for his own use. Specialists of the Department of Agriculture describe this winter gardening practice at present not a general one in this country, but of considerable importance in Europe.

In building a forcing house over the rows in the field rough boards are used for the walls. These are covered with a cheap grade of roofing paper. The roof is formed of hotbed sash. The houses are usually heated with steam or hot water or by means of flues. Some growers depend on the heat of the sun, but this is satisfactory only during the spring.

Method of Forcing.

Lifting the crowns from the field and placing them under greenhouse benches, hotbeds or in cellars is the commoner method of forcing. The crowns are plowed or dug up late in the fall when the soil is moist, so as to have as much soil as possible adhere to them. They are then left exposed in the field until frozen when they are covered with litter or removed to a shed in order to prevent alternate freezing and thawing which is harmful. The crowns then are stored in a cool cellar or pit and bedded as needed to supply a succession of shoots.

When ready for forcing, the crowns or roots should be brought to the cellar or other forcing place and bedded on 2 or 3 inches of loose soil on the floor. The clumps should be placed close together, the spaces between the clumps filled with loose soil, and the crowns covered to the depth of about an inch. The soil should be moistened thoroughly and kept moist all the time, but never allowed to become drenched. For white shoots the light should be excluded. When forced in the greenhouse the space under the benches is utilized, and the light can be excluded by boarding up the sides or hanging old carpets, burlap, or canvas over the openings.

The Temperature Needed.

For the first 10 days after the crowns are placed for forcing the temperature should be kept rather low, 45 to 50° F. After this period a temperature of 55 to 60° F. is most satisfactory, although a higher temperature will not be injurious. A temperature as high as 75 to 80° F. produces a rapid, soft growth, while a low temperature produces a slow growth, but gives shoots of good quality.

In about six weeks after bedding, the cutting can begin and will continue until the crowns are exhausted. As soon as the crowns become exhausted they should be removed and a new supply put in. With a little care in timing the bedding of the crowns, a continuous supply can be had all winter.

HOW TO STORE POTATOES.

Proper storage of potatoes, according to a specialist of the United States Department of Agriculture, would prevent much of the annual loss in this important food crop. Inexperienced growers especially are urged to take safeguards against spoilage.

Potatoes should be stored in a cool, dark cellar or be buried in a pit in the garden. They must not be allowed to freeze. If they are buried in pits the potatoes must be covered sufficiently to keep out all frost. If exposed to the light they will turn green.

A good method of storing potatoes is to place them in barrels with a few holes cut in the sides near the bottom for ventilation. Cover the barrels with old sacks and place them in a cool, dark part of the cellar.

CARE FOR FALL COLTS.

Since the production of fall colts seems to be gaining favor in many horse-producing sections, as well as in some sections where the production of horses has been previously neglected, it is desirable that these youngsters be accorded every chance to begin the winter season in the best possible condition, says the United States Department of Agriculture. Although they avoid the fly evil, they are exposed to extremely cold weather and of necessity must be maintained in stables most of the time until the following grass season.

Joint-ill, a germ disease, which causes the deaths of hundreds of newborn foals, should be controlled by ligation or binding of the umbilical cord as soon as possible after birth and the subsequent swabbing of the small portion of the cord left pendant in a 1-500 solution of corrosive sublimate. The filth germs which cause the disease enter the body by means of the umbilical cord unless such precautions are taken. A piece of surgeon's silk should be bound around the cord as close to the body of the animal as possible. Then the sublimate solution should be applied to the pendulous portion of the cord twice daily until it drops off. The colt should be born in a well lighted and ventilated stable, in a stall which has been disinfected thoroughly and bedded with clean, bright straw. After the birth of the colt the stall should be cleaned out and disinfected again, while the litter should be burned.

HOARD.

Plenty of home-canned fruits and vegetables.

All garden products dried that can't be canned.

Sugarless homemade fruit juices and sirups.

Your garden root crop in proper storage.

BE A PATRIOTIC HOARDER.

COMBATING GREEN PLANT BUGS.

Hand picking and the use of trap crops are recommended by the United States Department of Agriculture as the best methods of controlling the southern green plant bug which frequently causes serious injury to cultivated crops, particularly those of the garden, in the southern portion of the cotton belt. A study of this pest to learn more of its life history and methods of control, made by Mr. Thomas H. Jones of the department and reported in Bulletin 689, showed that the bugs are quite resistant to contact insecticides. While it is possible to use mixtures to kill the adults it is necessary to have them so strong that the plants upon which they are used are apt to be injured.

The fact that the adults congregate on turnip and mustard late in the fall leads the entomologists to recommend that these crops be used to attract the bugs. When these trap crops are covered with the insects they may be destroyed easily. The southern green plant bug attacks grains and several kinds of vegetables when in the green stage, but prefers tomatoes, beans, Irish potatoes, sweet potatoes, okra, mustard, and turnip. The adult and nymphs cause injury by inserting their beaks into the plant tissue and extracting the juices. Young growing shoots and developing fruit are most severely injured.

MUCH CORN SAVED BY NEW COMBINATION CRIB-GRANARY

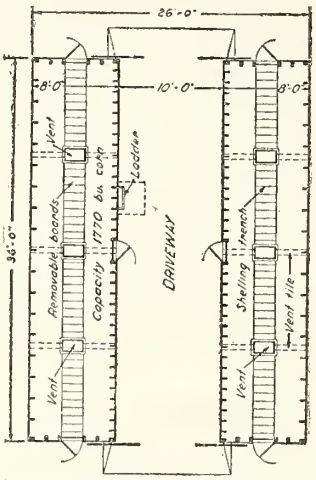
High Value of Grain Makes Good Storage a Necessity.

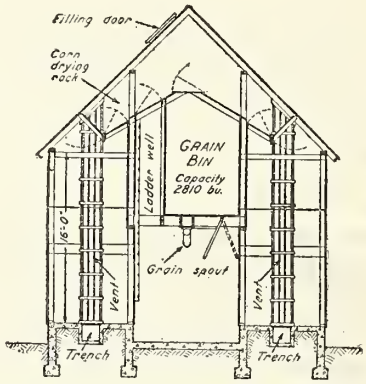
Engineering Specialists Offer to All American Farmers Complete Plans for Arragement That Has Worked Out Well.

Millions of bushels of corn could have been saved in a marketable condition last fall if proper farm storages had been available for the accommodation of this grain.

The farmer possesses no regulatory powers over the weather man; he has no control over season, but he can fortify himself against the crop losses which often occur as a consequence of inadequate equipment and unserviceable shelter. Time was, with grain dirt cheap, that any sort of a makeshift crib or bin was satisfactory as storage for the grain crops. In actual dollars and cents, many farmers reckoned they could stand the loss of a few bushels of grain better than they could afford the cash outlay for the construction of dependable, permanent storehouses. Fortunately the prevalent high prices of grains are pushing the props from under this outworn theory. The loss of several tons of corn or wheat, in view of the present market prices, moun 3 into 3-column figures and it doesn't take many such losses to make this waste loom large as a mountain.

The specialists of the Division of Rural Engineering of the Bureau of Public Roads, United States Department of Agriculture, Washington, D. C., have devised a highly efficient and relatively inexpensive combination crib and granary which merits the careful study and investigation of every progressive farmer. This storage has made a hit with practical farmers who have subjected it to the acid test of extensive use under a wide range of varying conditions. It is adapted for the average, general purpose, corn-belt farm. It furnishes as nearly ideal conditions for the drying, curing, and storage of grains as are practical. It minimizes hand labor in handling the crops while it favors the maximum utilization of labor-conserving machines. It is free of waste space, while it is equipped with detachable safeguards for protection against damaged grain in the way of ventilators and drying racks which can be removed during seasons when they are unnecessary.





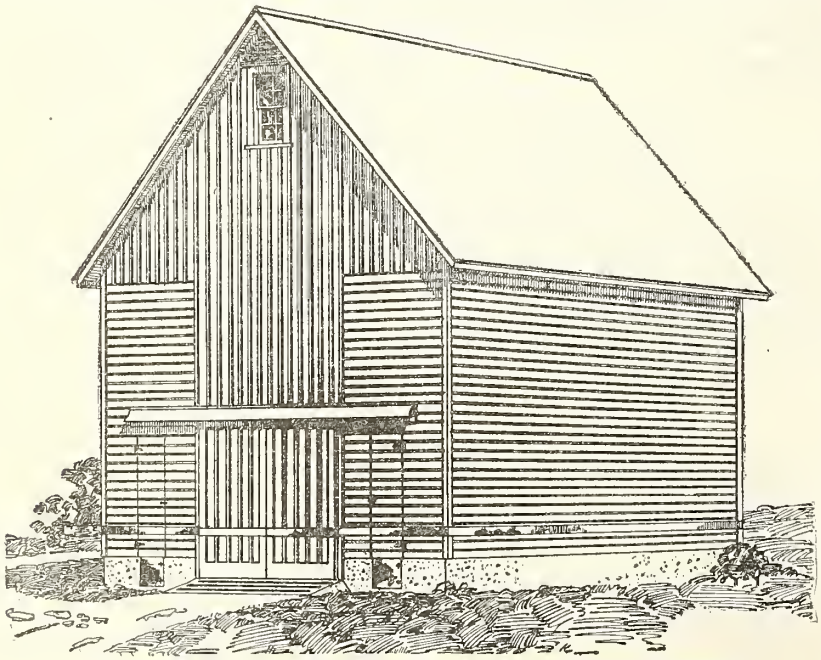
THIS COMBINATION CRIB AND GRANARY AFFORDS PERFECT CONDITIONS FOR GRAIN STORAGE.

Prevents Spoiled Corn.

Investigations have shown that corn which seems well matured at husking time may contain as high as 33 per cent moisture. If this corn is heaped together in unventilated cribs, much of it will rot and mold. On the other hand, if this grain is properly stored in ventilated cribs, most of the excessive moisture will evaporate in a few days. In order to facilitate the proper curing of the corn, as well as to permit of handling the grain in large quantities, specially planned drying racks are used in the combination granary under discussion.

This crib and granary is 26 feet by 36 feet in floor dimension, with a capacity of 2,810 bushels of small grain and 3,540 bushels of corn. The overhead grain bin occupies space which otherwise would be wasted in an average crib of this character. To give the building proper height and pitch of roof to favor the efficient use of either a stationary or portable elevator, this otherwise surplus space is necessary. It is occupied by the overhead wheat bin. Present-day economical construction necessitates the use of high studding in wooden structures rather than the use of long, sloping roofs.

A special feature of this corn crib which has been devised by the experts of the Rural Engineering Division consists of drying racks situated near the top of the crib, where the corn can be suspended for from 3 to 10 days before being dumped into the crib proper. On these racks the ventilation conditions are extremely favorable to the proper curing of the corn. Furthermore, the crib is provided with removable ventilators, which supplement



THERE IS NO WASTE SPACE IN THIS HANDY STORAGE HOUSE.

the shelling trench in the floor, to provide a correct system of air drainage; this combats the tendency of moist, damp corn to damage in the crib. As the corn is dumped from the drying racks it falls in conical piles in the crib, where, over a wide surface, it is exposed to thorough ventilation and drying before more corn is dumped on top of it. These racks do not interfere with the maximum filling of the crib, as the outer rack may be fastened back on the rafters, while the inner rack can be raised and the space below filled.

The Shelling Trench.

The shelling trench in the floor of the crib is another valuable labor saver, because one man with a long-handled rake can roll the grain from the top of the crib into the drag as fast as the ordinary sheller can handle the grain. In this way the attendant is able to prevent corn slides and jams in the drag. The bottom of this drag is at ground level and is smooth, so that the drag can be easily pushed under the corn. As already stated, this trench is used as an inlet duct in the ventilation system by screening its ends to keep out rats and other rodents. At regular intervals tile extends from the shelling trench through the wall in order to provide for a cross draft of air into the trench.

Any or all of these suggestions may be incorporated into any crib of similar design. The expense of such improvements would be repaid in one or two seasons of damp grain. The ventilators which are used are readily removable while the drying racks are hinged so that they can be drawn back out of the way. The grain bins are easy to install, and they occupy what was formerly waste space in cribs with steep roofs and high peaks. Furthermore, a concrete feeding floor on which corn may be fed to hogs can be installed at the option of the owner.

Complete working plans and bills of material for this desirable combination granary and crib will be furnished to any farmer in the United States if he will direct a request for them to the Chief, Division of Rural Engineering, United States Bureau of Public Roads, Washington, D. C.

DANGEROUS INSECTS IN COTTON PACKING.

To meet the danger of possible entry of dangerous cotton-insect pests in cotton and cotton waste used as packing for glassware, china, or other articles, the Federal Horticultural Board of the United States Department of Agriculture has asked cooperation from the principal exporting countries in preventing the use of such packing materials. In a recent Treasury order customs officers have been instructed to hold all importations of goods packed with cotton or cotton waste, and either to report the fact to the local inspector of the Federal Horticultural Board at the port where the merchandise is offered for entry or to require the importer to remove and destroy all objectionable material.

SECRETARY HOUSTON VISITS SECTIONS HIT BY DROUGHT

(Continued from page 1.)

arrange to meet their own needs partly by reason of the fact that they have made sufficient wheat to supply their own seed and some forage for their stock. A considerable number will supplement their means by working during the winter on the railroads, or with private industrial establishments, or in the shipyards of the Northwest, securing funds to meet their living expenses, to provide feed for their stock, and to secure seed for the spring planting, returning in the spring in time to resume farming operations.

The banks are doing what they can to take care of their customers who have collateral. Many of them have utilized their resources liberally, but some of them have found it difficult to extend further accommodations. The relief furnished, therefore, by the special fund made available by the President will result in a number of the farmers continuing their operations and adding to the food supply. The Department has not asked the people in these regions to extend their acreage, or even to plant a normal acreage, but merely to do what they can in the circumstances. The farmers seem fully determined to do everything possible.

Small Number Seek Loans.

The number seeking loans for fall planting will be relatively small—much smaller than was anticipated—and the applications received and approved in the Northwest will not, in the aggregate, take a very large part of the funds allotted to that section.

Judge Lobdell left the party at Great Falls and went immediately to the Southwestern section, going directly to Wichita, to get a full, first-hand view of conditions there and to confer with the officers of the two departments handling the fund in that region. The same general spirit and situation were found. Here, too, the applications received and approved for loans out of the fund will represent a small share of the amount assigned to the area. Rains have fallen in a part of the section and the indications are that the farmers are proceeding with their operations and that the class of farmers contemplated under the loan will be able to take care of their spring operations.

MOVING CATTLE FROM DROUGHT REGIONS IN SOUTHWEST TEXAS

Department Works to Prevent Loss of Meat-Breeding Stock.

Helps to Sell Where Feed is Abundant; Agents Bridge Gap Between Sellers and Buyers In Other States.

To prevent hundreds of thousands of beef-breeding cattle from being slaughtered and removed from the country's sources of meat, the United States Department of Agriculture has begun work of the same nature as that carried out last year to aid in the removal of breeding stock from the drought regions of Texas to good grazing grounds in the Southeastern States, the corn belt, and other sections.

An agent at the Fort Worth, Tex., cattle market locates and grades good breeding cows and heifers being offered for sale in that territory. He notifies beef-cattle specialists in the States where feed is abundant, and farmers who want to buy beef-breeding stock are told by county agents of the opportunities for purchase. A 75 per cent freight rate for such cattle has been announced from Texas to points east of the Mississippi River.

Important Factor in Beef-Cattle Industry.

It is estimated that from 150,000 to 200,000 head of beef-breeding cattle were removed from Texas last year through the efforts of the Department of Agriculture, and that at least as many more, of which the department has no record, were taken to good grazing land in other States. This movement is expected to be an important factor in building up the beef-cattle industry in the Southern States,

Arrangements have been made in a number of States whereby the administration of live-stock sanitary regulations will not impede the movements more than necessary.

The demand for the range-bred cattle became so great last year in the Southeastern States that a number of beef-cattle specialists were sent to Fort Worth to handle direct the orders from their States. In many instances whole trainloads, made up of small purchases, were shipped cooperatively.

Stumps may be removed by burning, by explosives, by mechanical means, or by a combination of any or all these three methods. There is no "best method" of ridding land of stumps, and the selection of a method for their removal should be determined only after a consideration of factors involved.

CULL OUT SLACKER HENS AND REDUCE FEED BILLS

Dropping Poor Producers Increases Profits and Improves Breeding.

Government Specialists Discuss Points to Consider in Selection—Sickness, Lack of Vigor, Molting, Color are Important.

With feed high in price and in many cases difficult to get, it is of the greatest importance to cull the poultry flock this fall.

Culling serves two purposes. First, it insures that the feed shall be consumed by the better producing hens, thereby increasing the profit. Second, it makes it possible to save those best suited for breeders, both on account of their better production and on account of their superior strength and vitality, qualities so essential to layers if they are to stand up under the severe strain of heavy laying.

Under war conditions it is imperative that the poor producers be weeded out. The slacker hen must go.

In a weekly report from one of the Government poultry extension men in Connecticut a statement showed the value of culling a flock which contained 1,403 White Leghorn hens. This flock was culled July 19; 826 hens were marketed and 577 kept as producers. The average daily production for the week previous to the culling was 300 eggs, and the average daily production for the week after the culling was 342 eggs. In other words, the 577 hens averaged more eggs than were secured from the flock of 1,403, while the feed bill was reduced more than half.

Cull All The Year.

Culling should be continuous throughout the year. This continuous culling should consist of weeding out, when discovered, any hen which is sick, very thin or emaciated, which shows evidences of nonproduction, weakness, or poor vitality.

The whole flock should also be given a careful and systematic culling at some one time. The hens should be handled individually and gone over carefully with the object of dividing them into two lots, one the better producers and the other the poorer producers. From the better producers it is also desirable to pick out as many of the best as will be needed for breeders. Mark these hens so that eggs from them alone will be saved for hatching. Market those selected as the poor producers. Save for laying and breeding those selected as the better producers.

How to Cull.

The following are the main points to consider in selecting the layers from the nonlayers:

Sickness and lack of vigor are usually indicated by listlessness, poor appetite, dull eye, and dark or bluish color of comb.

Molt is one of the most valuable and easily applied tests of production. Hens cease laying completely or almost completely during the molt. The better producers lay late in the fall, and therefore molt late. Late molters also molt rapidly as a rule, while early molters molt slowly. Therefore, save the hens which did not molt by August but begin to molt in September or in October, and discard those which have finished molting or are well into the molt. The hens which molt last, provided they are otherwise desirable, are the best hens to save for breeders. Culling the early molters just as soon as they begin to molt is one of the easiest ways to weed out the poor layers.

In those breeds having yellow legs the color fades out slowly as the laying season advances. The rapidity and degree to which the yellow color is lost depends to a considerable extent upon the heaviness of laying. During the molt this color is slowly regained to some extent. Hens showing strong or medium yellow shank color are almost certainly poor layers, but occasionally poor layers may show pale or white shanks.

When a hen is laying or about to lay her comb is large, full of blood, and bright red in color. When not laying the comb is small and shrunken, pale or dull in color, comparatively hard, and covered with whitish scales. As a hen gets ready to lay again her comb increases in size. A dark or bluish color usually indicates sickness. The changes in the wattles and ear lobes are similar to those of the comb, but not so marked.

As a hen stops laying there is a tendency for her to take on fat. This is noticeable in examining the pelvic bones, the two bones which can be felt as points on either side of the vent. When the hen is laying these bones are comparatively thin and flexible. When she is not laying they feel thicker and less flexible, due to the fat which has accumulated there. The spread or distance apart of these pelvic bones is also a valuable indication of whether or not the hen is laying. When laying they are wider apart than when not laying. This spread can be roughly measured for practical purposes by determining how many fingers can be laid between the bones. If the spread measures two fingers or less, the probabilities are that the hen is not laying, while if the spread is greater she is probably laying. In measuring the spread, the size of the hens of different breeds with the corresponding natural difference in the spread must be kept in mind.

The distance from the rear end of the keel bone to the pelvic bones increases with a consequent increase in size of the abdomen. A spread of three or more fingers in the smaller breeds, such as the Leghorn, and four or more fingers in the larger breeds, such as the Plymouth Rock, indicates that the hen is in laying condition. A spread of less than two fingers in the smaller breeds and less than three fingers in the larger breeds indicates that she is not in laying condition.

When the hen is laying the greater size of the abdomen, together with the lessened tendency to accumlate fat at this point, results in a soft flexible abdomen, suggesting, when handled, the texture of the partly milked-out udder of a cow. When laying has ceased the abdomen grows smaller, fat is deposited there, and it feels harder and less flexible.

TO KEEP CHICKENS AT HOME.

A yard surrounded by a 5-foot fence will, under most conditions, keep chickens at home. If the hens show a tendency to fly over such a fence, the flight feathers of one wing should be clipped. A fence made of woven wire is preferable to a fence made of board or other material. A board should not be used at the top of a wire fence as this gives the hens a visible place to alight and tends to teach them to fly over. The larger the yard which can be provided the more contented the hens will be. It not only gives them greater opportunity to exercise but often makes it possible to maintain a sod on the yard which is advisable.

PLEDGE INCREASED PRODUCTION.

"Under trying labor and feed conditions, we pledge to you and to our Government our united support in all efforts to increase the production and conservation of food, thus helping win an early and victorious peace," was the resolution passed by a rising vote of the members of the New Castle County Farm Bureau in Delaware and Delaware Milk Producers Association at their annual picnic. Copies of the resolution were sent both to the Secretary of Agriculture and to the State council of defense at Dover.

HOG-CHOLERA TREATMENT AIDS TRAFFIC IN FEEDER ANIMALS

More Than 37 Million Pounds of Pork Added to Nation's Supply.

Use of Serum and Virus Lessens Danger of Spreading Diseases by Interstate Shipment From Public Stockyards.

Advance of the serum and virus treatment for hog cholera is credited by United States Department of Agriculture officials with being largely responsible for recent great development of the traffic in stocker and feeder hogs. It is estimated that more than 37,500,000 pounds of pork were added to the Nation's supply by this traffic in the fiscal year that ended June 30, although regulations were modified to help the industry only on January 2. Further notable growth of the traffic is expected.

During the fiscal year ending June 30, 254,731 head of swine were inspected and immunized against hog cholera by inspectors of the Bureau of Animal Industry at public stockyards and were shipped to country points for feeding and breeding purposes. The average weight of these animals at the time of immunization was approximately 100 pounds. Probably 250,000 of the number were shipped for feeding purposes and later were returned to the markets at an average weight of 250 to 275 pounds, giving an approximate total increase of from 37,500,000 to 43,500,000 pounds of pork.

How Hog Cholera Spreads.

Many years ago light-weight hogs and piggy sows were sold at the markets as feeders and breeding animals, respectively, and shipped indiscriminately to all sections of the country. This practice spread hog-cholera infection throughout all swine-raising sections and was one of the causes of the staggering losses from that disease. The department thereupon issued an order prohibiting the interstate shipment of hogs from public stockyards except for immediate slaughter. The effect of that order was that all light-weight hogs—some of them young sows suitable for breeding—sent to the markets were slaughtered, and the pork which would have been produced had they grown to maturity, as well as the potential breeding value of the sows, was consequently lost.

In addition, the fact that many of these animals were not especially desirable for slaughter made them bring comparatively low prices, frequently resulting in actual loss to the shippers.

Quarantine Orders Modified.

After the serum and virus treatment against hog cholera was standardized by specialists of the department, an order was issued permitting swine to be shipped from public stockyards for feeding or breeding purposes when they had been given such treatment under the supervision of a department inspector. However, it was required that treated swine should be held in the yards 21 days before shipment, this period being later reduced to 14 days. The cost of feeding the animals during the quarantine period was so great that the traffic did not reach any considerable proportions. But with added knowledge and experience in the control of hog cholera, and amplification of State laws governing its control, the department thought it safe to permit the shipment of treated hogs at once to points in States which have regulations requiring that such animals be held in local quarantine until 21 days have elapsed since the date of treatment. The order permitting this became effective on January 2, 1918.

Previous to that date shipments of immunized swine had been comparatively few, while since that time the number has grown rapidly. No doubt is entertained that as the facilities for handling such animals are improved and the general knowledge with reference to hog cholera is increased, the traffic in stocker and feeder hogs from public stockyards will have a steady growth and will become a tremendous factor in the production and conservation of food.

Kansas Defense Council Praises Farm Bureaus and County Agents

Appreciation of the work of farm bureaus and county agents in Kansas in backing the Nation's war program by increasing food production, aiding food conservation, and supplying hands to harvest the crops, is expressed in resolutions unanimously adopted recently by the Kansas State and county councils of defense.

The best stands of corn and sorghums that Kansas has had for many years have been obtained through the work of the farm bureaus and county agents in locating, testing, and distributing seed, the resolutions state. These agencies also have helped in the distribution of thousands of bushels of seed wheat of the highest quality.

Thirty thousand harvest hands have been definitely enlisted and 90,000 distributed throughout the wheat belt by the farm bureaus and county agents in cooperation with the farm-labor director, the councils of defense, the United States Department of Labor, the State board of agriculture, and the chambers of commerce.

All-round Cooperation.

The farm bureaus and the county agents also have cooperated closely with the Food Administration in conducting campaigns for food conservation and the use of substitutes, in arranging for the thrashing of the Kansas wheat crop at fair prices and minimum of loss, and in preparing reports for the Federal Government of the quantity of wheat thrashed.

In view of these things, and inasmuch as the activities of the farm bureaus and county agents have been recognized as essential war work by Congress and special funds for their organization made, while the essential nature of their work has also been recognized by the War Department by placing well-trained and able men in this work in deferred classification, the Kansas councils of defense have pledged their aid and encourage and urge counties through their board of county commissioners to make liberal appropriations for the support of farm bureaus and their work.

INCREASES SHOWN IN RECEIPTS OF CATTLE, HOGS, SHEEP DURING AUGUST

Receipts of cattle, hogs, and sheep at 58 markets during August show increases of 10.8 per cent, 31.2 per cent, and 26.6 per cent, respectively, when compared with the receipts at the same markets during August, 1917, according to the monthly stockyards report issued by the Bureau of Markets, United States Department of Agriculture. For the first eight months of 1918 the combined totals of the same markets show that the receipts of cattle increased 12.3 per cent, hogs 10.6 per cent, and sheep 5 per cent when compared with the receipts of the corresponding period of 1917. Comparative figures on shipments and local slaughter also show increases for all species in August, 1918, and for the first eight months of 1918, with the exception of the slaughter of sheep, which shows a decrease of 2.2 per cent during the first eight months of this year.

Receipts at 58 markets in August, 1918, and August, 1917, the figures for 1918 being given first, were: Cattle, 2,010,765, 1,815,068; hogs, 2,446,103, 1,864,007; and sheep, 2,214,699, 1,748,735. Shipments at 48 markets were: Cattle, 842,335, 700,758; hogs, 842,143, 583,583; and sheep, 1,184,596, 925,943. Shipments of stockers and feeders show large increases, the percentages for August being: Cattle, 20.3 per

cent at 38 markets; hogs, 173.9 per cent at 22 markets; and sheep, 44.2 per cent at 27 markets, while for the first eight months of 1918 the percentages were: Cattle, 8.6 per cent at 38 markets; hogs, 94.8 per cent at 25 markets; and sheep, 39.4 per cent at 29 markets.

Slaughter figures at 45 markets for August of both years, with 1918 figures first, were: Cattle, 1,180,179, 1,088,787; hogs, 1,568,206, 1,262,984; and sheep, 888,238, 713,623.

Both receipts and shipments of horses and mules increased about 38 per cent in August, 1918, although the totals for the first eight months of 1918 show a decrease of 8.9 per cent in receipts and 8.5 per cent in shipments as compared with the first eight months of 1917.

LICENSE LIVE-STOCK BUYING BY PACKERS.

Operations of packers on live-stock markets are made subject to Federal license in the same manner as activities of other stockyard dealers in a proclamation issued by the President under authority given by the food-control act. Licenses must be obtained by September 19. The President's action supplemented the proclamation of June 18, 1918, under which stock-yard firms and dealers were licensed. Regulatory powers under the new proclamation will be administered by the Secretary of Agriculture through the Bureau of Markets.

According to the proclamation, all individuals, partnerships, associations, and corporations, except those exempted by the food-control act and those required to be licensed under the proclamation of June 18, engaged in the business of handling, buying, selling, or otherwise dealing in live or dead cattle, sheep, swine, or goats, in or in connection with places, establishments, or facilities commonly known as stock yards, consisting of pens or other inclosures and their appurtenances, in which cattle, sheep, swine, or goats are received, held, or kept for sale, feeding, watering, or shipment, are now required to secure licenses.

Applications for licenses must be made to the law department, License Division, United States Food Administration, Washington, D. C., upon forms prepared for that purpose.

NO STATEMENT ON COTTON PRICE.

A statement concerning cotton price fixing appeared in a Washington, D. C., paper recently to the effect that it was understood that Secretary Houston has expressed the opinion that 25 cents would be a fair price for this year's cotton. This statement, and any other statement that may have been made purporting to represent the views of Secretary Houston as to a price for cotton, if any is to be fixed, is utterly without foundation. The Secretary has expressed no opinion as to a price for cotton.

Have an Ice House Ready for Harvest When Ponds Freeze; Help Relieve Demand

Every farmer who can put up natural ice should plan to do so this winter as a patriotic duty. Each farm ice house will help relieve the drain on the city supply and on transportation, and will guarantee protection for the dairy products and other perishables from the farm when warm weather comes again.

These war times make heavy demands upon the fuel supply of the country, and paradoxical as it may seem, it takes fuel to produce artificial ice, while natural ice may be harvested at a time when farm work is not pressing and both man and horse labor are not otherwise profitably employed.

Ice is one of those luxuries which in many sections of the country can be had for the gathering. The cost of harvesting and storing it is not great as compared with the comfort that it brings.

An ample supply of ice is of greater economic importance in the country home than in the city residence. City people can purchase perishable supplies as needed, but the remoteness of country homes from markets often renders it necessary to use canned, corned, or smoked meat products during the season of the year when the table should be supplied with fresh meats. Not only is the use of ice important in the preservation of fresh meats, butter, and other table supplies, but the production of high-grade domestic dairy products is almost impossible without it. Many markets to which milk is now shipped demand that it be cooled before shipment to a degree not attainable without the use of ice.

The Type of House to Build.

Generally, the construction of an ice house is a question of economy. The cost of harvesting and storing, interest on the money invested, repairs and depreciation on the building should offset the saving in the melting of ice; beyond this it is not good policy to go.

Since ice at best is a highly perishable product, requiring special equipment for its preservation, such natural advantages as are offered by shade and exposure should be taken advantage of in locating an ice house. A shady situation, with a northern exposure, has a decided advantage as a location for such a building.

In general design ice houses are of three types: (1) Those built entirely above ground; (2) those built partly above and partly under ground; and (3) those of the cellar type, built entirely below ground. The above-ground structure is by far the most common of these types.

The advantages and disadvantages of these three types may be briefly stated. Above-ground houses can, as a rule, be more economically constructed than either of the other designs. Excavations are expensive to make and difficult to insulate and drain properly.

Insulation and Drainage.

Insulation and drainage are two of the most important factors in the preservation of ice. It is true that the temperature of the earth varies less than that of the air, but the fact that the temperature of the earth at 6 or 8 feet below the surface remains at or about 55° F. the year around makes it quite as important to protect the stored ice against the earth heat as against the heated air. It is more difficult to remove ice as needed during the season from pits than from structures above ground. Slight advantages are apparent at harvest time in favor of the cellar or the half-sunken types of house, and under some circumstances they will be preferred to the other type.

The length of time ice may be kept depends upon the character of insulation provided. This will naturally vary with the location of the ice house and the method of construction. Another important factor will be the cost of construction.

The simplest type of ice preservation consists in stacking the cakes in a compact mass on a well-drained site, as well protected as possible by natural or artificial barriers from sun and wind, and covering the mass with sawdust, shavings, fodder, marsh hay, or any other good insulating material. Such a crude method is not to be recommended except as a temporary makeshift for ice which is to be used early in the season.

FOR LACK OF ICE.

One large creamery, which buys about 350,000 gallons of sweet milk and cream per year, returned to farmers last year nearly $2,700 worth of these food products on account of lack of proper care which caused souring, churning, and off flavors.

The records of another plant show that nearly 50,000 gallons of sour milk were received in one year.

Insufficient cooling caused most of these losses, which are duplicated many times all over the country during the heated season.

FOOD AND FARMING

What is said to be the world's record production of marketable potatoes on 1 acre—49,531 pounds, or 825 bushels—has been made on an acre of land near Kanab, in the southeastern section of Utah, a few miles from the Arizona State line. The record yield was made in response to a competition fostered by the Mormon Church, and the church authorities drew a check for $1,000 payable to a representative of Kanab Ward, of the Kanab Stake of the church, which is responsible for the production. This yield is certified to by more than 50 farmers and is reported in the Reclamation Record.

In the census report of 6,361,502 farms in the United States in 1910, no one's mental picture of a typical farm is verified by general facts. Only one crop, Indian corn, was produced on more than three-fourths of the farms, the precise percentage being 75.7. Only two other crops were produced on one-half of the farms or more, and these were hay, with 53.5 per cent, and potatoes, with 50 per cent. Apples, with 46.9 per cent, nearly reached this class. On more than one-fourth of the farms only three other crops were produced—oats, 34.2 per cent; peaches, 29 per cent; and cotton, 26.9 per cent.

Of the total farm land at the time of the last census—1910—which comprised about 879,000,000 acres, somewhat more than one-third was in crops, one-third in pasture, and a little less than one-third in all other kinds of farm lands. Land in improved pasture represented nearly one-tenth of the total land in farms, and doubtless is used for crops from one-half to three-fourths of the time, according to the crop rotation that is practiced. A large part of the pasture land is unimproved, about 99,000,000 acres being "woodland pasture," and 108,000,000 acres "other unimproved pasture." This information is from Bulletin 626, United States Department of Agriculture.

The potato crop has no carry over into the next crop year, except that a small remnant remains to be marketed when the early potatoes of the next year begin to arrive. The Bureau of Crop Estimates has ascertained that the month when the smallest fraction of the year's crop is marketed by farmers is June, and this is 4 per cent. In July the percentage rises to 5.8, and the gain continues to 8.3 per cent in August, to 13.7 per cent in September, and to 23.5 per cent in October, when the maximum is reached. Thereafter the percentage declines to 11.8 in November, 5.8 in December, and to 4.4 each in January and February. In the spring potatoes move more freely from farms and the fraction of the crop that is marketed in March and April is 6.7 per cent, followed by decline to 4.9 per cent in May and 4 per cent in June. Nearly one-fourth of the potato crop is sold by farmers in October and over one-tenth in each of the months of September and November, or nearly one-half in three months in the main harvest season.

DR. PEARSON TO RESUME IOWA WORK.

Praised for Service in Department—G. I. Christie Nominated as Successor.

Dr. R. A. Pearson has resigned from the position as Assistant Secretary of Agriculture in order that he may resume his duties as president of the Iowa State College of Agriculture and Mechanic Arts. Dr. Pearson came to Washington at the urgent request of Secretary Houston shortly after the United States entered the war, the college having very generously consented to have him assist the department in the handling of the many emergency problems that had arisen. After an absence from the college of nearly a year and a half, Dr. Pearson felt that it was necessary for him to return to his former position and to give his entire time and attention to the affairs of the college.

Secretary Houston, especially in view of the generous action of the college authorities and of Dr. Pearson's prompt response to the call for service, did not feel that he could consistently ask either the college or Dr. Pearson to make further sacrifices and permit him to remain here longer. The Secretary expressed his gratitude to the Iowa State College for its kindness and consideration in temporarily releasing Dr. Pearson for service in the department and to Dr. Pearson for his loyal, zealous, highly intelligent, and efficient service. He requested Dr. Pearson before actively resuming his former duties to join, as president of the Iowa State College of Agriculture and Mechanic Arts, a small committee of men familiar with food production and agricultural organizations and activities in this country which the department is sending to England, France, and Italy, for the purpose of securing general information regarding agricultural problems and conditions in those countries. Dr. Pearson consented to do this and is now in England with the party.

The nomination of Mr. G. I. Christie, of Indiana, to succeed Dr. Pearson, has been transmitted to the Senate. In April of this year Mr. Christie came to Washington as assistant to the Secretary to aid the department in further organizing and developing its farm-labor activities. More recently he has been representing the Secretary in the field in connection with loans from the President's special fund to farmers in Montana, North Dakota, and Washington.

Mr. Christie was graduated from the Ontario Agricultural College, receiving the degree of B. S. A. He also received the degree of B. S. A. from the Iowa Agricultural College. He was assistant in agronomy, Iowa State College, Ames, Iowa, 1903–1905; assistant in soils and crops, 1905–1906; and he has been superintendent of agricultural extension work in Indiana since 1906. He is a member of the National Educational Association, the Indiana Corn Growers' Association, the National Seed Analysts' Association, and the Association for the Promotion of Agricultural Teaching. He was superintendent of the Indian agricultural exhibits at the Panama Exposition, and was chairman of the agricultural committee of the Indiana Centennial Celebration in 1916.

Elm Wood Is Strong and Stands Bending Well; Demand Increasing

Elm timber growing in the farm wood lot is a valuable asset.

The demand for elm is increasing, while the supply is rapidly diminishing. This condition led specialists of the United States Department of Agriculture to make a study of the available supply and the utilization of elm wood. In their report, recently published by the United States Department of Agriculture as Bulletin 683, it is estimated that the total stand of elm is approximately 7½ billion feet. This amount would furnish a supply for approximately 30 years at the present rate of cutting, as the annual output of elm lumber is about 24,000,000 board feet, placing elm twelfth in rank among all woods and tenth among hardwoods in point of lumber production.

Elm wood is desirable where strength, bending quality, and ability to withstand shocks are required. It is, in general, heavy, hard, and strong. The most important use to which it is put, according to the bulletin, is in the cooperage industry, the amount credited to this use being more than twice that of the next in importance, which is in the manufacture of baskets and crates. It is estimated that 147,000,000 board feet are used annually in making cooperage stock or barrels.

Elm is used extensively in making agricultural implements and vehicles also. It is useful in the manufacture of wheels and bodies for automobiles, and the rapid growth of this industry has brought about a considerable increase in the demand for elm. Its ability to make a good polish makes it desirable in the manufacture of certain pieces of furniture, cabinet-work, and interior trimmings. It is a fairly durable wood, the average untreated lumber in situations exposed to weather lasting six to eight years. When properly treated with creosote this period may be lengthened to 20 or more years, making it desirable for use as posts, poles, and railroad ties.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Agricultural Draft Advisers.

Agricultural advisers, one of whom is to be associated with each district draft board in the country, are to be announced soon by the Department of Agriculture, which is appointing them after consultation with agricultural leaders in the various States. The agricultural advisers, in accordance with a plan agreed upon by the War Labor Policy Board, Provost Marshal General, Secretary of War, Secretary of Agriculture, and Secretary of Labor, are to present facts to the draft board relative to the supply of necessary agricultural workers.

"The War Department must raise an army; military needs are first," says a letter from the department to those advisers already selected. "The advisers will aid in this in such a way as will least cripple agriculture and industry."

Wheat-Substitute Work Continued.

The laboratory of plant chemistry, Bureau of Chemistry, which at the outbreak of the war was ready with completed experiments of several years' duration on the use of wheat substitutes in bread making, now is investigating conditions affecting the keeping qualities of the substitutes. Experiments on the use of wheat substitutes were begun in this laboratory in 1912 or earlier. The subject received attention at that time because of the increasing demand for wheat and the gradual rise in the price of the flour. The beginning of the European war in 1914 sent flour prices still higher and gave added reason for the experiments. The experiments were complete before America entered the war in 1917, and much information useful in food control was available. The substitutes that have been investigated in the laboratory number about 30, and include white corn flour, polished rice flour, oat flour, barley flour, and others that have helped American bakers and housewives save wheat for our soldiers and the allies.

Arranges Wearing Test of Shoes.

In cooperation with the War Department, the leather and paper laboratory of the Bureau of Chemistry has arranged for wearing tests of shoe leather to be made by a regiment or a less number of soldiers in the field. The laboratory is having between 1,000 and 1,500 pairs of shoes manufactured, and they are to be issued to a regiment that is to be designated by the War Department. Complete records, from the hide to the worn-out shoe, are to be kept, and it is expected that the information obtained will be valuable to the general public as well as to the military authorities. Approximately 12 kinds of sole leather, sole-leather substitutes, and materials for uppers are to be tested. It is expected that the wearing test will last six months. The shoes are to be distributed among the men of different companies in the regiment, so that the results will be strengthened by the law of averages.

Guarantees Farm Grown Seed Potatoes.

Farmers of Chautauqua County, N. Y., having 3 acres or more of one variety of potatoes from which they expect to offer seed for sale may take advantage of the offer of the farm bureau arranged by special cooperation with the New York State College of Agriculture to inspect potato fields with the view of issuing a list of growers whose potatoes may be recommended for seed. This inspection takes in consideration the yield, purity of the variety, and freedom from diseases. Any grower who receives the recommendation of the county farm bureau for his seed potatoes will be greatly aided in selling them at prices suitable for good seed. By this means the farm bureau is able to determine which farmers are growing a crop which has merit for seed purposes and then to let everyone know who these men are.

Testing Drugs for Army.

Drugs and medicines used by the Army Medical Corps are being tested by the Bureau of Chemistry of the United States Department of Agriculture at headquarters in Washington and at its offices in various cities. Several chemists have gone from the bureau to accept commissions in the Army and perform the work directly for the War Department. Chemists and inspectors are being instructed for Army and Navy work and special investigations are being conducted on problems concerning foods, leather, fabrics, paper, and other products in military and naval demand.

Texas Boys in Food Army.

Texas boys to the number of 138,754 have enrolled as club members in the food-production army for 1918. This number exceeds by more than 125,000 all previous records of the State and, according to the Department of Agriculture, shows the fighting spirit of young America in backing the armies abroad. If food will win the war, the boys of Texas are doing their part.

Poultry Keepers Have "Culling Drive."

"Culling drives" to weed out the unprofitable fowls are being conducted by poultry raisers in many sections of the country under the direction of local leaders of the United States Department of Agriculture. In one community in Missouri the local leader organization set out to cull the nonproducers of every farm possible on a certain day, and as a result of this campaign, known as a "culling drive," selections were made in more than 300 farm flocks. This undoubtedly brought about the sale or the eating of several hundreds of hens that, had they been held over during the winter, would have made at least a large proportion of the flocks unprofitable. Such campaigns are made possible through the organized local communities under the supervision of good leaders.

Investigating Cotton Gin Fires.

The Bureau of Chemistry and Bureau of Markets of the United States Department of Agriculture are investigating, from headquarters at Dallas, the causes and methods of preventing fires in cotton gins. Nearly 400 fires occurred in Texas cotton gins last year, with an estimated loss of cotton worth a million dollars.

Prompt Action Relieves Hay Shortage.

A recent hay shortage in Williams County, N. Dak., was handled success-

fully with the aid of the county farm bureau. Aware of the county's need, the chairman of the section of the farm bureau on pastures and winter feeds called together the chairmen of the local committees and took up with them the needs of each section of the county. These community chairmen then made the rounds of their townships and in some cases called meetings where they secured estimates of the amount of hay that the farmers will need for next winter. A member of the bureau was delegated to visit northern Minnesota and other sections to see where hay could be secured. He was accompanied by the former county agent of Williams County. Through the cooperation of the farmers in securing information regarding the shortage and in locating hay, sufficient hay was obtained at a reasonable price to carry Williams County over the winter.

Community Markets Prevent Waste.

Forty community markets have been organized and are in operation in Massachusetts, according to a report of a representative of the United States Department of Agriculture who recently visited the State. By means of these markets large quantities of vegetables and fruits which might otherwise be wasted are utilized and townspeople can obtain the products while fresh and at a comparatively low cost. In most towns where the markets have been established old buildings centrally located have been utilized and furnished at little cost. In many of the markets canning kitchens are conducted and fruits and vegetables not sold in the first state are canned either for the owner at cost or to be sold later.

Tests Show Value of Right Seed.

One variety of wheat produced at the rate of 66.6 bushels per acre, while another variety, grown under the same conditions, produced at the rate of 38.3 bushels in tests recently completed at the Georgia Experiment Station, in which the United States Department of Agriculture cooperated. The data adds to the proof already on hand that it pays to sow the right variety—the variety that is best suited to the conditions in sections in which it is grown. In each State or wheat-growing district there are varieties, according to the department, which produce higher yields than others, even when given the same culture. If growers are not familiar with the high-yielding varieties for their section, they can obtain information on the subject from their State experiment station or the United States Department of Agriculture. Varietal experiments with rye at the same station resulted in one variety producing at the rate of 43 bushels per acre and another 37.3 bushels. Similar tests with barley resulted in one variety producing at the rate of 70.5 bushels per acre and another 55.2 bushels when grown under the same conditions.

Common Barberry Must Go.

Further proof that there is a close relationship between the rust of barberries and of wheat and other cereals has resulted in active campaigns to eradicate the shrub in many communities. Two rather striking cases of this close relationship were observed recently in Indiana by representatives of the United States Department of Agriculture. In one locality a field of wheat, along one side of which grew a barberry hedge, was practically destroyed by the black stem rust. The case was so clear that 17 farmers held a field observation day under the guidance of the county agent and immediately drew up resolutions, in which they stated that the relation was so clear that they wished to go on record as favoring legislation to eradicate all barberry bushes from the State. In another case a hedge of barberry and two deep plantings were found on a farm upon which a wheat field was so badly affected that the crop was a partial failure. A second field near by was very seriously affected also, as well as a number of fields in the vicinity. Similar cases have been observed in a number of other States, and public sentiment favoring the eradication of the common barberry is growing rapidly. It is said that Japanese barberry does not harbor the wheat rust.

Proper Loading Lessens Losses From Crushed Grapes in Transit

Extensive investigations conducted by the United States Department of Agriculture show that the crushing of grapes in a car in transit is governed by the type and strength of the package, the manner and care used in loading, the height of the load, the construction of the car, and the handling it receives from the railroad. Twelve-quart Climax baskets and trays are recommended because they properly protect the fruit; they are not too costly; they are suitable, attractive, and available for most markets.

When Climax baskets are used for loading grapes, says the Department's Bureau of Markets, they should be well made, of good wood, with veneer cut 17 to the inch as a minimum thickness for the 12-quart size, and 20 to the inch for 4 and 2 quart sizes. Wooden handles permit a firmer load than wire handles, as they strengthen the baskets and serve as braces in the load.

Experiences demonstrate that the best results occur when Climax baskets of 12-quart size are loaded 7 high, the 4-quart size 12 high, and the 2-quart size 15 high. All other packages should be loaded to the height of not less than 48 inches or more than 60 inches from the bottom of the first layer.

Bushel baskets, hampers, and miscellaneous boxes are not satisfactory packages for grapes, as they can not be loaded safely with economy. All types of grape packages carry best when loaded according to the "straight system," that is, with all packages end to end, extending from one ice bunker to the other. In every other layer of Climax baskets, it is necessary to load those that touch the bulkhead crosswise in the car in order to fill in the otherwise vacant spaces, but this should not be permitted any where else in the load. All slack should be taken out as the baskets are being loaded, using racks to fill out at the end of the car when there is surplus space. Every fraction of an inch of surplus space from side to side of the car should be tightly filled in by loading the last row diagonally. Detailed suggestions on right loading are made in Markets Document 14, "Loading American Grapes," which has just been published by the department.

GREATER YIELDS OBTAINED BY USE OF VARIOUS GREEN-MANURING CROPS

Green-manuring crops increase the moisture-holding capacity of soils, and in particular lighten heavy clay soils, explains the United States Department of Agriculture in an illustrated lecture on green manuring prepared and published recently for workers.

The New Jersey Experiment Station calculates that two crops of green manure contain as much phosphoric acid and potash and nearly as much nitrogen and organic matter as 20 tons of stable manure. Although the potash and phosphoric acid are not added to the soil, they are returned in more available form, and if the green manure used is a legume, at least part of the nitrogen is an addition to that already in the soil. However, it is expensive to handle the stable refuse, while the green-manuring crop can be grown directly on the impoverished land, and thus be ready for uniform plowing-under when it has attained

the proper growth. The New Jersey station demonstrated that leguminous green manures are more efficient than stable manure in the matter of crop production and in maintaining the nitrogen content of the soil.

Benefits Lasting.

The residual value of a green-manure crop is evident for two or more years after a crop of cowpeas or velvet beans has been turned under, according to the results of experiments conducted in Alabama. The Canada Experiment Farm at Ottawa ascertained that the effect of a turned-under crop of red clover was still strongly evident the third year afterward. In the Western and Northwestern States, the green-manuring crops have not given the positive results that have been secured in the Southern and Eastern States.

The North Dakota and Minnesota Experiment Stations claim small gains in wheat yields as a result of using catch crops of clover.

Where a leguminous crop can be properly harvested and fed to live stock, and the resultant manure can be returned in good condition to the land, the net returns to the farmer usually are greater than where the crop is turned under directly as a fertilizer. Factors which determine whether a crop should be plowed under or fed are: (1) The richness and physical condition of the soil, (2) character of the crop at the time it is ready to cut, (3) lack of live stock to consume the crop, (4) the price of hay and the local value of manure. The problem of what disposition each farmer should make of green cover crops is one for individual solution, as each man must make his own decision in this regard in accordance with his local condition.

A green-manuring crop should be turned under at least two weeks before the next crop is planted. In plowing down the catch crop, the furrow slice should be laid slanting, at an angle of 30 to 40 degrees with the horizontal. Directly after plowing, the field should be rolled thoroughly, as this hastens decay and prevents the drying out of the soil.

The principal green-manuring crops which are now in extensive use include crimson clover, sweet clover, burr clover, soy beans, cowpeas, velvet beans, vetches, Canadian field peas, and rye.

AMERICA'S accomplishment in France, quite aside from actual fighting, in material construction equals the building, in 15 months, of two cities, such as Kansas City and St. Louis, with their intervening railroad tracks and warehouses.—Clarence Ousley.

Advises Vaccination of Hogs Bought for Feeding; Stop Hog Cholera Spread

Farmers should insist that all the stock hogs which they purchase for feeding purposes should be properly vaccinated by competent and conscientious veterinarians in order to prevent the spread of hog cholera, says the United States Department of Agriculture. Unlike the larger stockyards of the country, which are properly protected by qualified Government representatives, many of the smaller local yards are entirely without safeguards against cholera.

Immature hogs go from the farms of origin mainly because of lack of feed or on account of disease. The purchaser who buys such sick hogs on the market for feeding purposes usually introduces disease into his home herd. To stimulate production and to conserve our available pork supply none but vaccinated, immunized, healthy hogs should be maintained in the feed lot. If the farmer wishes to aid efficiently in halting the Hun, he should help increase our hog supply by routing disease.

The practice of buying hogs from public stockyards for feeding and stocking purposes, a custom which has been intensified in this war emergency, has to a large degree complicated the work of controlling hog cholera. In many cases, owing to improper equipment for the treatment and disinfection of hogs, new centers of infection have been introduced in communities previously free from the disease, and the movement of hogs from public stock yards having no supervision by State or Federal authorities and where treatment for the prevention of cholera is not compulsory is a serious handicap in the fight to prevent the spread of infection. A menace still exists when hogs are bought at local stock yards where hog-cholera infection is present the year round and where a system of disinfection and immunization is either unknown or disregarded.

Losses Due to Poor Methods.

Some losses have resulted from shipments of stocker hogs even when originating at public stock yards having Government inspection, particularly in the early beginning of extensive movements of these animals for feeding purposes. Several factors were responsible, such as improper equipment for immunization and disinfection, insufficient doses of serum for hogs exposed to infection, the application of treatment promiscuously by anyone chosen by the buyer of the hogs, and the use of the serum-alone treatment, which produces an immunity of very short duration. These are proofs positive that "haste makes waste," but these objectionable features are being overcome. Where proper equipment is being installed, dosage of serum increased and the treatment placed in the hands of competent veterinarians, losses occurring in shipments of this character have been reduced to a minimum.

There is reason to believe that with the various agencies in each State, such as county agents and farm bureaus, interested in the increased production of meat animals, a system of exchange could be established to bring together farmers with a surplus of hogs and no feed and those having more feed than hogs, with a view of having the transfer of these animals effected locally and avoid the long and dangerous journey to a public stock market and back to farms oftentimes in the same community. In fact, such exchanges or clearing houses have proved of great benefit in getting buyer and seller in closer touch without the medium of a public stock yard, thereby avoiding commissions, heavy freight charges, danger of infection and consequent losses.

Sick Hogs Must Not Be Shipped.

The danger of shipping sick hogs to market is, of course, obvious. Farmers and others who knowingly endanger their neighbors' property through the marketing of diseased stock instead of properly disposing of such animals on the farm and disinfecting the premises are guilty of wrongdoing and should be restrained or punished by the proper authorities. Such men retard the work that is being done by State and Federal agencies to eradicate cholera and to make the swine industry a profitable investment.

Conservation is necessarily the basis of increased production, and until farmers are fully advised not to patronize infected localities, to shun stock yards having no Federal or State supervision when purchasing stockers or feeders, and to immunize against infectious and contagious diseases of live stock, particularly hog cholera, efforts at stimulating increased production of meat will be seriously hampered. To buy hogs from infected districts, whether stock yards, feeding lots, or farm, without the proper precaution of immunization and disinfection, not only halts production, but establishes a likely chance of introducing hog cholera on clean farms and destroying the susceptible animals already on the premises.

More Horse Beans Should Be Grown in This Country, Says Department Bulletin

Horse beans, because of their quality and high feeding value, should be grown much more extensively in this country, according to Farmers' Bulletin 969, recently published by the United States Department of Agriculture. Their value, according to the bulletin, has long been known in the Old World where from ancient times they have been grown as a vegetable, a forage, and a green-manure crop.

In some sections of this country, particularly the Pacific Coast States, the large flat-seeded varieties are produced in home gardens and are used either green, dried, or canned as a vegetable much the same as any of the more common beans. Although their use as a stock feed has been limited in the United States, they are considered in some cases to be superior to field peas and other leguminous crops. All varieties of horse beans are winter-growing annuals and should be planted in the fall in Southern States and in early spring in northern latitudes.

Horse beans are not very exacting as to soil requirements, but do best on well-drained, heavy loam or clay loam soil. A good supply of moisture, however, is essential. The crop requires practically the same climatic conditions as common vetch. The hardier varieties stand a winter temperature of 15 degrees above zero without serious injury, but the tenderer varieties are frequently killed by light frosts. Best development is made in cool weather and in localities having mild winter conditions such as prevail in the South and Pacific Coast States. Seeding can be done in September, October, or November, the exact time depending largely upon the soil moisture available in these months. In northern localities or at high elevations farther south where severe winter conditions prevail, planting should be done as early in the spring as the ground can be worked.

Seeding of small-seeded varieties can be done with a common corn planter, and planters used for lima beans are suitable for the larger varieties. Except when grown on a commercial scale for drying and for stock feed or as a green-manure crop, seeding is usually done by hand. Horse beans planted on land for the first time require inoculation, which is true with most, if not all, legumes. The crop should be cut for seed as soon as the lower parts are mature and the upper ones fully developed. They must be handled as rapidly as possible after cutting, as the seed shatters easily. Under favorable conditions the seed yields are heavy, the average production being about 1½ tons per acre. Seed retains its vitality for a long period; germination tests with seed 4 years old has shown only slight, if any, deterioration.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended September 21, 1918:

Shuck Protection for Ear Corn. Department Bulletin 708.

Stagger Grass (Chrosperma muscaetoxicum) as a Poisonous Plant. Department Bulletin 710.

Larkspur or "Poison Weed." Farmers' Bulletin 988.

Timothy. Farmers' Bulletin 990.

The Use of Machinery in Cutting Corn. Farmers' Bulletin 992.

Saving Farm Labor by Harvesting Crops With Live Stock. Farmers' Bulletin 1008.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

SAVING ALL THE MANURE POSSIBLE MEANS MONEY NOW; HOW TO DO IT

Late fall—any time before the ground freezes—on most farms is the easiest time to provide for making the most out of the home supply of manure. And this year, when commercial fertilizers are high in price or impossible to obtain, it is doubly essential that we save every bit of the farm manure.

"Apply as fast as made" is the best rule before the ground freezes, and even later than that on level ground. But in hilly sections the farmers doubtless are right in thinking there is too much loss from the manure washing down the hillsides after the ground freezes, or on the snow. Then, too, in the North the snow is sometimes too deep for hauling to be practicable.

Most literature on the subject of pit building for manure storage is based on using concrete for material. While this will usually pay if capital is available, many farmers feel they do not have the money to put into it. Fortunately there are other ways that will help greatly with little or no cash expense. If a roof is already available under which to store the manure, the ground should be leveled, or, better, made to slope toward the center. Then, if the soil is sandy or loamy, the surface should be removed to a depth of six inches or so and the heaviest clay procurable put in. After spreading a couple of inches of clay it should be wetted and thoroughly tamped down. This process should be repeated until the desired height is obtained. The outside rim may well be a foot or more higher than the center, this depending on the size of the pit and the ease of access for hauling away the manure. While such a bottom will hold much of the liquid, it is better to cover it with some absorbent material—dry loam is good if bedding is scarce. Do not use wood ashes, but coal ashes are harmless if screened. Continue to use enough loam to prevent any liquid from oozing from the pile, which should be kept level, moist, and well tamped. Horse manure, unless mixed with that from cows or hogs, should be wetted thoroughly—but not enough to drain out—in order to keep it from heating, as heating causes a heavy loss.

If there is no roof under which to keep the manure, a cheap one should be built. This may be a one-slope "lean-to" along the outside of the barn, a cheap shed with sides, or simply four heavy, high posts on which a roof slides up or down according to the height of the manure—such as is used in some sections for outdoor haystacks.

If you can't do all these things, do what you can. It will help you and the country not only during the war but after the war.

IF your county is one of the few without an agent, write the extension director at the Agricultural College.

CIVIL SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for pulp and paper engineer, for men only, on October 29, 1918. A vacancy in the Forest Products Laboratory, Madison, Wis., at $3,500 a year, will be filled from this examination.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Twilight Labor Crews are Great Help Harvesting Kansas Wheat

The 1918 Kansas wheat crop has been harvested largely through the efforts of the farm bureaus and county agents of the State in definitely enlisting 30,000 harvest hands and distributing 90,000 more through the wheat belt of Kansas. The farm bureaus and agents have cooperated in this work with the farm-labor director, the United States Department of Labor, the Council of National Defense, and other agencies.

A survey of the labor situation was made in most counties by the farm bureau, so that individual needs might be met as far as possible. In several counties farm-labor leaders were appointed in each town. They cooperated with the farm bureau vice president in placing men during the harvest period.

In Kingman County a main labor office was opened in Kingman, with branch offices in the smaller towns. In Pawnee and other counties committees were formed from the county agent, the representative of the United States Employment Service, and members of railroad and commercial companies, who went into the cities and towns to obtain men. They undertook to meet all interurban trains by automobile and to distribute the men over the county.

The farm bureaus and county agents also carried on a publicity campaign, placing in prominent places labor posters directing men to the farm-bureau office. By all or some of these means sufficient labor was secured to harvest the crops throughout the State.

"Twilight harvest crews" was the name given to the groups of business men from neighboring towns and cities who agreed to go out for three hours' work in the fields after supper. In one county 638 acres of wheat were shocked in 650 hours by these "twilight shockers." The last 10 days of June saw an average of 16 squads of five, each composed of the business men of McPherson, go out for three hours' wheat shocking after 6 o'clock each night. Business men of Council Grove shocked 250 acres of wheat and oats. Four hundred men shocked 590 acres of wheat under the direction of the agent in Shawnee County. Five and six carloads of these workers were sent out each evening.

"Twilight shockers" in Franklin County contributed their earnings, amounting to $150, to the American Red Cross.

The successful harvesting of the Kansas crops in spite of the failure of the usual supplies of labor is thought to show the value of county organizations in securing cooperation among farmers and assistance from cities and towns.

FUMIGATING HOUSES ON MEXICAN BORDER.

The Federal Horticultural Board of the United States Department of Agriculture has awarded contracts for the construction of fumigating houses on the Mexican border at El Paso, Del Rio, Eagle Pass, Laredo, and Brownsville, Tex. The largest of these houses, at Laredo, will have a capacity of 15 freight cars and the smallest, at Del Rio, where there is no railroad connection, will be equipped for the fumigation of wagons and trucks. This fumigation project is thought to be the largest enterprise of the kind ever attempted, exceeding even the cotton fumigating plants of Boston.

These houses are to enable the fumigation of both the exterior and the interior cars, including the contents, in the fight to keep the pink boll worm of cotton and other insects out of the United States.

A Liberty Bond is a bond to make the Hun keep the peace.

DIAGNOSING BEE DISEASES.

Specialists in bee diseases will be interested in Bulletin 671, "The Diagnosis of Bee Diseases by Laboratory Methods," just issued by the United States Department of Agriculture. This is a professional paper prepared by bee-disease experts of the department. It is technical and is not intended for the layman. For an understanding and application of the methods discussed in the bulletin a preliminary training in general bacteriology, supplemented by special knowledge of the pathogenic bacteria and the methods pursued in the diagnosis of diseases in general, is necessary.

MAKE your work count for the most by backing the Nation's agricultural war program:

Back up the County Agent;
Back up the Farm Bureau;
Back up the State Agricultural College;
Back up the U. S. Department of Agriculture;
And by so doing help—
BACK THE KAISER OFF THE EARTH.

INCREASES SHOWN IN STOCKS OF VARIOUS OILS AND COOKING FATS

Stocks of fats and oils in commercial channels, other than retail stocks, as reported to the United States Department of Agriculture in the comprehensive food survey for July 1, 1918, were as follows:

Lard, 114,693,782 pounds; lard compounds (including substitutes other than purely vegetable substitutes), 50,410,780 pounds; solid vegetable cooking fats, 42,636,551 pounds; oleo stock, oleo oil, and edible tallow, 30,770,747 pounds; cottonseed oil, 41,718,674 gallons; olive oil, 901,995 gallons; peanut oil, 4,839,931 gallons; corn oil, 2,891,457 gallons.

The figures given above include stocks actually reported as on hand by manufacturers, storage houses, and wholesale dealers, and also quantities reported as in transit from these stores. The stocks of retail dealers, as reported for July 1, 1918, are not included, since these reports are still in process of being tabulated. In a similar survey made by the department for January 1, 1918, the retail stocks constituted the following percentages of the total commercial stocks of the commodities here considered:

Lard, 29.5 per cent; lard compounds, 38.3 per cent; solid vegetable cooking fats, 28.9 per cent; oleo stock, oleo oil, and edible tallow, 2.2 per cent; cotton-seed oil, 2.5 per cent; olive oil, 44.8 per cent; peanut oil, 4.8 per cent.

In the case of lard and lard compounds, the stocks reported as on hand on July 1, 1918, were slightly less than the corresponding stocks for July 1, 1917, the percentages being 96.3 and 98.4, respectively. The holdings of oleo stock, oleo oil, and edible tallow were 87.8 per cent of those reported a year earlier. The greatest decrease is noted in the case of olive oil, where the holdings on July 1, 1918, were only 35.8 per cent of the holdings for July 1, 1917. In the case of the four remaining commodities, the stocks reported represent an increase over the corresponding stocks of a year earlier, the percentage of increase being as follows: Solid vegetable cooking fats, 14.5 per cent; cottonseed oil, 8.2 per cent; peanut oil, 194.8 per cent; corn oil, 56.6 per cent.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — OCTOBER 9, 1918 — No. 10

NAMES AGRICULTURE ADVISERS FOR DISTRICT DRAFT BOARDS

Department Announces Men Selected for Work in Various States

They Are to Furnish Facts on Farming Needs in Their Own Fields and for Entire Country—Questionnaires Sent

The Department of Agriculture is naming men to work with the district draft boards in the various States as advisers regarding agricultural needs.

The agricultural advisers are not to be members of the district boards, but are to furnish to the boards facts relative to farm-labor requirements, not only of their own districts but of the entire country. Such information will be supplied to the advisers by the Department of Agriculture. The advisers also may concern themselves with individual cases before the district board. County agents of the Department of Agriculture have been supplied with questionnaires to be sent out for the purpose of securing facts about the farm-labor needs in the counties.

Appointments so far announced include:

Arkansas

J. R. Alexander, Scotts, Ark.; agricultural adviser to district board, with headquarters at Little Rock, Ark.

D. E. Eicher, Springdale, Ark.; agricultural adviser to district board, with headquarters at Fort Smith, Ark.

Arizona

District Board, Division No. 1, with headquarters in room 2, county courthouse, Phoenix.

Agricultural adviser, L. L. Harmon, Phoenix, Ariz.

District Board, Division No. 2, with headquarters at Tucson, Ariz.

Agricultural adviser, F. W. Taylor, Tucson, Ariz.

Colorado

W. D. Keen, Pueblo, Colo.; agricultural adviser to district board for Division No. 1, with headquarters at 306 Federal Building, Pueblo, Colo.

C. L. Hover, Longmont, Colo.; agricultural adviser to district board for Division No. 2, with headquarters at 244 Capitol Building, Denver, Colo.

Connecticut

Elijah Rogers, Southington, Conn.; agricultural adviser to district board, Division No. 1, with headquarters at Hartford, Conn.

F. M. Peasley, Cheshire, Conn.; agricultural adviser to district board, Division No. 2, with headquarters in the county courthouse, Waterbury, Conn.

G. A. Drew, Greenwich, Conn.; agricultural adviser to district board, Division No. 3, with headquarters in the county courthouse, Bridgeport, Conn.

Delaware.

S. H. Derby, Woodside, Del.; agricultural adviser to district board, with headquarters at Dover, Del.

> **THERE are 2,300 county agents in the United States, representing more than 80 per cent of the agricultural counties and 97 per cent of the agriculture.**

Florida

District Board, Northern District, with headquarters at Pensacola, Fla.

Agricultural adviser, P. K. Yonge, Pensacola, Fla.

District Board, Southern District, with headquarters at Tampa, Fla.

Agricultural adviser, L. B. Skinner, Dunedin, Fla.

Georgia

William Bradford, Cedartown, Ga.; agricultural adviser to district board for the northern district, with headquarters at 105 Capitol Square, Atlanta, Ga.

W. F. Whatley, Statesboro, Ga.; agricultural adviser to district board for the southern district, Division No. 1, with headquarters at Savannah, Ga.

R. A. Stratford, Barnesville, Ga.; agricultural adviser to district board for the southern district, Division No. 2, with headquarters at 220 Second Street, Macon, Ga.

(Continued on page 12.)

MILK COWS AND PITCH HAY TO BACK THE NATION'S GUNS

Farmer Shows His Men How They Help Win the War

How Routine Tasks Become Vital Parts of America's Work Toward Victory for the Cause of Freedom

This is the story of how one farmer, hampered by poor help and a difficult labor situation, tied his business in with war needs and won out. Milking cows and pitching hay for so many dollars a month are dull jobs, but milking cows and pitching hay to win the war are altogether different propositions.

He is the owner of a dairy farm not many miles from a large city and from several Army cantonments. His dairy supplies milk for the Army. He has found his output continually hampered by the "turnover" of his labor.

Many agricultural laborers are in the habit of shifting their jobs. Some do not like to stay long in one place. Others may work a few months and then go to the city, spend what they have earned, and look for work somewhere else. All these considerations make for a waste of time at critical hours, a waste in breaking in new men, and a big waste in lack of interest in the work.

It struck this young farmer that it would be good business for himself and the country if he could minimize this loss.

Talking Machine Started It.

One hot evening, not many months ago, while the men were lounging under the trees, the owner of the farm got his talking machine out on the porch and fed it "Over There" and "Good Bye, Broadway; Hello France!" Questions followed and presently the farmer found himself talking to his men about the war. He began to tell them of the western front and the difference between the Hindenburg and the Foch method of attack. The men seldom read newspapers, so he conceived the idea of a bulletin board news poster. Upon it he pasted typewritten abstracts of the day's war

Harvest profits placed in Liberty Bonds are safe for you and your country.

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and sporting news, the happenings of the farm, and short editorials having to do with both local and patriotic subjects.

Once a week now he holds his open-air forum. Sometimes he talks to the men himself. The milk from the farm goes to engineers and to marines at their respective camps. It is a vital food, especially in the hospital. He drills into his force this fact—that if a man can not get into a uniform himself he can fight the Hun by feeding the men who can.

One of the farm workers had been an aviator who was injured in service. He told the farm family at weekly meetings about "hedge hops" and "spiral dips." A Canadian from one of the camps came down and related his experiences at the front. Men from other war work tell the story of what they are trying to do.

Thrift Stamps as Bonus.

Then the farm owner began to experiment still further. At the end of the month he turned over to each man over and above his wages a $5 war savings stamp as his part of the farm profits. He explained that only by close coöperation could the venture be made a success. He got the dairy inspector to pick the best kept sections of the barn and gave additional prizes to the men in charge of them. He offered premiums for ideas showing how the work could be done better or in less time.

The men woke up to an interest in the farm. Most of them had lived from hand to mouth all their lives. They began to invest in war savings stamps. Some of them started savings accounts. They crowded around each new bulletin to see what the allies were doing in the big battle of northern France.

The result is amazing. The farm activities have speeded up to war-time efficiency. Instead of "chucking" their jobs at the end of a month or two the men feel that they are a part of the farm family. They see that no part of the farm work can be neglected without dragging on the whole. Whether a man raises feed or milks cows or gets the milk to market, he can not get lazy without handicapping the whole output.

Men Are Thinking.

For the first time in their lives the men are really thinking; and they are thinking in terms of patriotism. This particular farm, a cog in the machine that is going to win the war, is working smoothly and without friction.

The United States Department of Agriculture passes on to others the record of this man's experience and success, not with the idea that the plan is applicable everywhere, but that it may help others to think out a program to suit their own conditions.

Special Order Permits Shipment of Cattle to Fairs in Cattle Tick Zone

A special order providing for the interstate shipment of cattle from tick-free territory for exhibition at certain fairs held in the quarantined area, which provides also for reshipment without dipping, has just been issued by the Bureau of Animal Industry of the United States Department of Agriculture. The fairs affected by the order are: South Louisiana Fair, to be held at Donaldsonville, La., October 3 to 6; Texas Cotton Palace, at Waco, Tex., November 2 to 17; Florida State Fair and Exhibition, at Jacksonville, Fla., November 27 to December 6.

The order specifies that cattle shall be shipped by rail to points of exhibition and shall not be unloaded in a quarantine area elsewhere than at such points. Separate, clean, and disinfected chutes and other facilities shall be provided for the exclusive unloading and loading of the cattle at points of exhibition, and the cattle shall be hauled in clean and disinfected wagons directly to and from the cars and exhibit grounds. All cattle shall be excluded from the fairgrounds during the interval between fairs, and the entire fairgrounds must be maintained free from cattle-tick infestation. All hay, straw, and similar materials used for feed and bedding shall originate outside the quarantine area and be shipped in clean and disinfected cars.

The cattle shall not be returned from points of exhibition to points outside the quarantined area except in clean and disinfected cars, nor unless accompanied by a certificate issued by an inspector of the Bureau of Animal Industry showing that such cattle have had no opportunity to become infected with the cattle tick.

GOVERNMENT PERMITS NECESSARY FOR BRIDGE BUILDING DURING WAR

War need for steel and other materials makes it necessary that bridge construction be reduced to a minimum, announces the United States Highway Council, and approval by the council must be given before materials can be obtained.

Public officials are reminded that there is great demand for cement and brick, and that they are not justified in assuming that if their plans are changed from steel to concrete it will be possible for them to build new bridges without difficulty.

Every endeavor, the council says, should be made to keep existing structures in service by all available means, such as effective supervision, suitable repairs, control of traffic, and prohibition of use of bridges by street cars, road rollers, traction engines, and other heavy vehicles.

If public officials find it impossible to maintain existing structures and can not substitute temporary bridges for those that are unsafe, they should apply to the United States Highway Council through their State highway departments for approval of their projects.

Even when dairy utensils appear clean, if they have not been properly sterilized they may harbor vast numbers of bacteria which contaminate milk or cream that comes in contact with them.

YOUR money in a Liberty Bond is bread on the waters; and it not only returns to you, but comes back with interest.

PROTECTING BEES IN COLD REGIONS.

For the colder regions, cellar wintering of bees is advised by specialists of the United States Department of Agriculture in Farmers' Bulletin 1014 which has recently been published. For large apiaries, special cellars should be constructed, though cellars under dwellings are sometimes used, and with good success. They must be well drained, and must be insulated so that the temperature within the hives does not fall below 52 degrees F. A sidehill is a good location for a special bee cellar. It should be entirely underground and the top covered with a good insulating material such as sawdust. The sides and floor may be of concrete, or the floor may be of earth and the sides of boards. A good height is 6½ feet in the clear, high enough to allow the operator to work comfortably. The hive bodies should be piled four deep. The cellar should be kept dark. Remove the hives to their summer stands in time for the earliest honey-flow.

The idea that certain practical work done by boys and girls on the farm should count as credits in the agriculture courses of the rural elementary and high schools is growing rapidly in popularity among educators. The basis for this idea is the belief that the farm may and should become the logical laboratory for testing out and putting into practice much that is taught in the schools, and that the schools by giving credit for home work can and should encourage boys and girls to make profits for themselves or to become more directly helpful to their families.

Food Administration to Continue Assurance of $15.50 for Fall Hogs

Herbert Hoover, Food Administrator, has written the following letter to H. C. Stuart, chairman of the Agricultural Advisory Board, in response to the recommendations of the board with regard to the maintenance of hog prices:

"DEAR GOV. STUART: I am extremely obliged for the helpful and intelligent recommendations of the committee. I wish to say for the Food Administration that so far as we are able we will continue the assurance of a minimum $15.50 per hundred for average of packers' droves at Chicago for hogs farrowed this fall. We can reconsider the outlook in a few months as to the extension of this again to spring farrowing. I have myself little doubt that we will be able to continue. I do want it made clear in all these matters of price influence by the Government that this is not a guaranty—it is a policy, and this policy will only be defeated by some unlooked for interruption in distribution transportation or consumption—a risk of war we must all take.

"The criticism has been made that in changing the formula from 'cost of corn to be fed to the hogs' to the 'farm value' or farmers' 'selling value at country stations' has the effect of an advance to the farmer, as it realizes to him the profit on corn production as well as the profit between the normal amount of corn fed to hogs and the higher ratio here adopted, and that the calculation of hogs at Chicago only partly compensates this. I am not, however, disposed to quarrel with just profits to the farmer, and in any event the application of such formulas must be rough and ready, and designed to attain their real end—justice and the stimulation of production.

"The Food Administration has systematic independent information on the actual prices paid for corn at country stations through its Cereal Division, and we must necessarily use this information in conjunction with information collected by the Department of Agriculture.

"We have carried out an inquiry as to which really are the eight leading hog and corn producing States for a basis of these calculations. We examined the question from various standpoints—production of both items upon a square-mile basis, upon per capita basis of population, upon simple State production and for different years. Under these tests Iowa, Illinois, Indiana, Ohio, Nebraska, and Missouri—six States—fall into every basis of calculation. Of the others it is difficult to decide. From different aspects Minnesota, South Dakota, Texas, and Tennessee all enter for the other two. In fact, the committee was referring to the 'corn belt,' of which Texas lies outside and only has place here by sheer size. From various aspects it appears to me that everyone would agree that South Dakota and Minnesota more nearly conform to the committee's definition than any other, especially if we 'weight' the relative factors. I have, therefore, adopted these States.

"In accordance with the committee's recommendation we will issue instructions to the packing firms, about 50 in number, who participate in controlled orders, effecting so far as these orders will go the stabilization of price on these lines.

"You will recognize that this should be effective as long as the controlled orders dominate the market. If they fall short of this it will be necessary to rely upon the packers carrying in stock any surplus pending absorption by the controlled orders or general consumption.

"This was accomplished last winter under difficulties, and a break below the minimum was prevented.

"Faithfully, yours,

"(Signed) HERBERT HOOVER."

The Hon. HENRY C. STUART,
Department of Agriculture,
Washington, D. C.

The Agricultural Advisory Board's recommendations were embodied in a report of a special subcommittee made public last Thursday. This committee's report was as follows:

The committee has been asked by the Agricultural Advisory Board to meet in conference with the Food Administration in consideration of the commercial methods to be pursued by the administration in the interpretation of the policy outlined on November 3, 1917, with regard to the price of hogs, which was as follows:

"The prices so far as we can effect them will not go below a minimum of about $15.50 per hundred weight for the average of packers' droves on the Chicago market until further notice. * * * As to the hogs farrowed next spring (1918), we will try to stabilize the price so that the farmer can count on getting for each 100 pounds of hog ready for market, 13 times the average cost per bushel of corn fed into the hogs. Let there be no misunderstanding of this statement. It is not a guarantee backed by money. It is not a promise by the packers. It is a statement of the intention and policy of the Food Administration, which means to do justice to the farmer."

The recommendations of the committee were:

(1) It is recognized that the Food Administration has no power to fix the price of hogs or corn, and can only influence the hog price so far as the volume of controlled orders for the Army, Navy, allies, and export trade will absorb the surplus production. If prices should go so high as to curtail consumption at home and abroad, then in this event the stabilization of prices during the next winter would be likely to fail, with disaster to the producer. On the other hand, it must be recognized that the costs of production are necessarily greatly increased, and that to maintain production fair returns must be assured to the farmer. It is, therefore, in the fundamental interest of the producer and consumer that both extreme high and low prices should be guarded against.

(2) In order to effectually carry out the above policy of the Food Administration, it is recommended that in dealing with the packer in respect to the coordinated purchase of pork products that directions should, if necessary, include a definite price basis in advance from month to month for the packers' purchase of hogs, upon which such orders will be based.

(3) It is recommended by the committee that the "average cost per bushel of corn" for the purpose of determining the price of hogs be considered as the average "farm value of corn," or the average selling price of corn at local railroad stations, as determined by the Department of Agriculture, and that the general corn figures may be arrived at by taking these averages and weighting them according to production over the eight leading hog and corn producing States for a period of five months preceding the month the hogs are marketed, or prior to the month for which directions are given to the packers. The price of hogs should be calculated on the average of packers' droves at Chicago.

(4) To illustrate: Based upon the prices of corn figured on the above basis during the last five months, and a general survey of market and consumption conditions, it was agreed that a fair price interpretation of the ratio for the month of October would be an average price, for the average of packers' droves, of about $18.50 per 100 pounds at Chicago. It can not be expected that the day to day market prices, with the fluctuating flow of demand and supply, can be maintained at any fixed and definite figures, but that it should be the aim to maintain about an average during the month.

(5) The indication of war demands are that the supply of pork products for the future should be kept up to the present level of production. The producers have responded magnificently and are placing at the hands of the Government the hogs with which to carry over the allied and domestic necessities for the next 12 months. It is obvious that after peace the world demand for pork products will be greatly increased over the present large war demands. The Food Administration should endeavor during the war to maintain prices for hogs that will be profitable to the producer and fair to the consumer, and to give this assurance to the producer the committee recommends that the Food Administration should at once announce its intention to maintain the minimum price of not less than $15.50 continuously during the war.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation and Harvesting During the Next Few Weeks

NORTH AND WEST

The following suggestions are from the Office of Extension Work in the North and West, United States Department of Agriculture:

SELECT SEED CORN ENOUGH AND TO SPARE.

Experience, especially that of farmers during the past year, should be sufficient to make most of them save enough seed corn not only for themselves for planting the field allotted for corn next year, but also a surplus for disposal to others who may find their seed of poor quality next spring. Several thousand farmers were inconvenienced last spring because of a shortage of good seed corn and those who had a surplus received a good price. Several states have been holding seed corn selection campaigns during September, and thousands of bushels of seed corn have been selected in this movement carried on by the State Agricultural Colleges through their extension forces, and especially by the county agents. There is still time for those who have not selected their seed corn to make the best of it, and lay aside a supply of the best seed corn now available.

Farmers generally realize that the best time to select seed corn is before severe fall frosts. However, if it is too late to go through the field before husking the crop and select from standing stalks, an effort should be made to save the best ears while husking.

In the corn belt a small box may be carried on side or at rear end of the wagon box for carrying the ears selected for seed. It is especially desirable that the seed ears be selected from the standing stalk in order that it may be possible to reproduce from stalks of the best type which have produced good ears.

In those regions where corn is cut early for husking from the shock, it is impossible to judge whether the good looking ear was grown under more favorable conditions, such as upon a stalk standing alone. Even when husked from the shock, selection before putting the corn in crib is still preferable, because it will then be more likely to be stored carefully, thereby insuring a higher percentage of germination in the spring, and consequently a better stand and a larger yield.

GIVE CORN PROPER STORAGE.

After making the best possible selection of seed corn it should be stored in a dry place, and one not subject to sudden changes in temperature or to severe freezing, especially in the late fall and early winter. Stringing or placing on corn racks in a well ventilated attic or an upstairs room is preferred by many farmers. Proper storage is especially necessary for corn not thoroughly cured and dried in the field.

SELECTION OF FIELDS FOR PRODUCTION.

To help produce a maximum of food next year it will be necessary to plow as much land as possible this fall. There has been a tendency, east of the Mississippi River, to plow fields for emergency crop production that have long been giving low yields of grass. This is correct in that the yield from that particular field will be increased, but it is often wrong, in that the same labor, which is now so scarce and high in price, and the same amount of fertilizing materials would produce more food if applied to a field in better condition to start with.

Fertilizer and labor will yield highest returns when applied to a field in condition to make most efficient use of them. For example, corn should be planted on a good, strong sod rather than on an old thin sod. The older the sod the thinner it usually is. In other words, this is no time to make an old worn-out field productive, unless it be incidental to the labor operations of farming the good land well.

First, then, farm the good land efficiently, taking up only as much land in a lower state of fertility as the labor and fertilizing materials available permit. This applies to both fall and spring crops.

COOPERATIVE CONTROL OF SMUTS.

The cooperative campaign for the control of cereal smuts was initiated last September and carried on throughout the past year in cooperation with the extension departments of the principal grain-growing sections of the United States. It falls naturally into two separate phases, namely, field-survey work and seed-treatment demonstration work. From September, 1917, to May, 1918, about 40 men were employed in the conduct of cooperative seed-treatment dem-

(Continued on page 14.)

IN THE SOUTH

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

VELVET BEAN HARVEST.

Feed, and especially concentrates, bids fair to be short this fall and winter. It is, therefore, of extreme importance that every effort be made to save and market all possible feed stuffs. Special attention should be called to the velvet bean. A large part of the crop raised in the Gulf States is usually left in the field, and while it is eaten by cattle, yet there are not enough cattle to eat all the beans. Beans ought to bring a good price this year, and they can be harvested by the children. Every effort should be made to get as many acres of velvet beans harvested and marketed as possible.

The same may be said of soy beans.

BREAD GRAIN FOR NEXT YEAR.

While the season is becoming late, the fall seeding of wheat and rye should not be overlooked if it can be done during the month of October. The South should produce enough wheat to feed its own people. The county agents are carrying on a program for the seeding of wheat and rye, which is just as important as that for Liberty bonds.

SAVE EVERYTHING.

The next few weeks constitute the harvest season for most field crops in the South. It becomes our patriotic duty this year to save everything. Harvest all the grain and utilize all of the forage crops. As soon as the corn, soy beans, peas, peanuts, etc., are removed from the field, arrange to turn in the live stock so as to consume everything of value. Soy beans, peanuts, peas, and other crops that would be injured by freezing should be harvested before the first killing frost.

SAVE SEED FOR NEXT YEAR.

Too much emphasis can not be placed upon the importance of field selection of seed corn. Every farmer should go into his field before the crop is harvested and

select from desirable types of plants several times as many ears as he expects to need for seed next year. These ears should be placed in a dry and well-ventilated storage place and protected from mice and rats. Seed for next year's crop of soy beans, cowpeas, peanuts, cotton, etc., should also be saved this fall and stored in a dry place. Look after your supply of garden seed for next year's planting. These seeds may be scarce another year and a little work on your part at this time will save you worry and also help you financially.

HARVEST POTATOES AND APPLES.

Sweet potatoes should be harvested during the coming weeks, dried and stored according to methods recommended by the Department of Agriculture. The farmers who do not know the proper method of handling potatoes should consult their county agent so as to save all the crop. Look after the harvesting of apples and pears and place them in proper storage so as to have a supply for home consumption the coming winter months.

PROTECT LATE GARDEN CROPS.

Usually there are a few weeks of pleasant weather after the first killing frost. Protect late beans and other tender vegetables subject to injury from frost by covering with paper or sheets when the first killing frost is apparent. In the case of tomatoes the entire vine may be pulled and hung up in a basement or shed where the fruit will ripen for some weeks later.

PROTECT MACHINERY.

The cost of machinery and implements is constantly increasing. Prepare now to protect implements and machinery from exposure during the coming winter. As far as possible all implements should be placed under a dry shed. Woodwork should be painted and all exposed iron and steel parts should be either painted or covered with grease or oil to prevent rusting.

SAVE THE MANURE.

The time is approaching when much of the stock will be kept in barns and sheds more or less of the time. Preparations should be made to take care of all manure that accumulates during the housing season. Too often manure is pitched out of the barns and exposed to the winter rains. Where manure is leached in this way the most valuable part of the fertilizer constituents is carried away to the streams and lost to the farm. When the manure is removed from the stalls it should be placed in a covered shed or pit and packed down so as to prevent leaching and fire-fanging, or it should be spread upon the fields where it can be plowed in immediately or applied as a top dressing for grasses.

LAY IN SUPPLY OF FUEL.

The early fall months is the time to lay in the supply of winter fuel. Where wood is used, cut out the old and decaying trees and prepare them for use in the house and kitchen. Green timber cut this time of the year will season more or less so as to save considerable worry and trouble in making fires during the winter months.

TAKE CARE OF DAIRY COWS.

As pastures begin to wane it is often the custom to permit the cows to get in a run-down condition. This is an expensive practice. Do not permit the flow of milk to decrease. As the pastures give out begin to increase other feeds so as to keep the milk flow constant. Preparations should also be made to shelter the animals from cold rains, sleet, and snow. More energy is consumed in maintaining the body heat of the animal exposed to severe weather than is utilized in the production of milk and butter.

CULL THE LIVE STOCK AND POULTRY.

Look over the live stock and poultry and select those to keep for breeding purposes next year. The culls should either be marketed or fattened for local consumption. The cost of feed is too great this year to be consumed by unthrifty animals.

FALL AND WINTER PLOWING.

Do as much winter and fall plowing as possible. Every acre that is plowed now means that much saved in time and labor next spring, when the busy season is on. It also permits the fields to take up the winter rains and gives a good storage supply of moisture for the coming crop.

WINTER AND EARLY SPRING GRAZING.

The extended drought during the latter part of the summer throughout most of the territory of the South has cut short forage crops. This fact, coupled with the high cost of feeds and the difficulties of transportation, makes it of the utmost importance that every farmer plant grazing crops for winter and early spring use. Rye, oats and vetch, and rape are recommended.

To Keep Roosters from Crowing —Simply Don't Keep a Rooster

Objection is frequently raised to the keeping of poultry in towns and cities because of the odor which may result and also because of the noise which is made by roosters crowing, particularly in the early morning. There is no necessity for the poultry flock to become a nuisance to neighbors.

If the dropping boards are cleaned daily and the houses and yards are kept in a reasonably clean condition there will be no annoying odors. The soil in the yard should be stirred or spaded up frequently, if not in sod, in order to keep it in the best condition. This will not only tend to keep down any odors which might arise, but also allow the droppings to be absorbed into the soil more readily, and therefore keep the yard in better condition for the hens.

The male bird need not be a nuisance. Unless it is intended to hatch chickens from the flock it is unnecessary to keep a male bird. The fact that there is no male in the flock will have absolutely no effect on the number of eggs laid by the hens. The male bird should be sold or eaten just as soon as the hatching season is over. This is desirable not only for the purpose of eliminating noise but also to save the feed that would be eaten by the male and for the reason that the eggs produced after the male is disposed of will be infertile. Since these eggs are incapable of chick development they keep much better than fertile eggs, and consequently are superior for preserving or for market.

A FOREST FIRE IS A HUN ALLY.

Carelessness causes many fires. Are you careless? Never leave your camp fire without making sure that it is completely out. We must win the war. We must fight the Hun, not forest fires. Are you careful with fire in the forest? Burning matches cause fires. Break your match in two before throwing it away. If you discover a forest fire, put it out.

THE farmer, in common with every good citizen, wants to do his best to help win the war.

Farms Do Not Need Expensive Equipment For Sheep Raising

Equipment for raising sheep on farms need not be expensive. In mild latitudes little housing is needed, and the main need is for fencing and pastures of sufficient number and size to allow frequent changing of flocks to fresh ground to insure health. Where winters are longer and more severe buildings and sheds are necessary to furnish protection from storms, though no special provisions are needed for warmth. Dryness, good ventilation, and freedom from drafts are the first requisites of buildings for sheep. Convenience in feeding and shepherding must also be held in mind in locating and planning such buildings or sheds.

Small flocks can be cared for in sections of barns having stabling or feed storage for other stock, but with a flock of, say, 100 ewes separate buildings are desirable. The interior arrangement of these buildings should be such as to require a minimum of labor and the least possible moving of the ewes in doing the feeding and caring for them during the lambing season. A building of this type can also be utilized for fattening purchased lambs to be disposed of before lambing begins in the regular farm flock. A good supply of feed racks, grain troughs, etc., can be provided at small expense and will save labor and prevent waste of feed.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended September 28, 1918:

The Chemical Analysis of Wheat-Flour Substitutes and of the Breads Made Therefrom. Department Bulletin 701.

Efficiency of Commercial Egg Candling. Department Bulletin 702.

Women's Rural Organizations and Their Activities. Department Bulletin 719.

Important Poultry Diseases. Farmers' Bulletin 957.

Use But Do Not Abuse Farm Woodlands. Forest Service Leaflet.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

UTILIZE MILK WISELY.

We need to produce pork and we need to produce meat of all kinds, but we must be able to do it without feeding vast quantities of materials that can be used in their present form more efficiently for human food. In converting skim milk into pork there is a loss of material, as all the nutrients in the skim milk are not recovered in the pork. Some are converted into bone and muscle, some into heat to keep up the body temperature, and some into energy for maintaining the functions of the body. From the standpoint of the world's food supply, it is not economical; it is not right to use, unnecessarily, for stock feed, a food that can be used readily for human beings.

A TRAGEDY IN BEEVILLE.

Through the summer and early autumn the hives were literally humming with industry. The busy bees had collected great stores of honey and the colonies were populous. There seemed to be every indication of a sucessful wintering and a succeeding profitable honey season. The winter, however, was extremely cold with fierce winds and sometimes little protecting snow. As the warm spring days approached a few bees emerged from some of the hives but most of the colonies showed no signs of life. Examination revealed the fact that the larger part of the bees were dead yet most of the hives contained plenty of honey. The apiary was doomed and all because winter protection to keep the bees warm had not been provided.

Practically every colony might have been brought through the winter in good working condition if they had been properly prepared for winter. Now is the time to prepare for next year's crop of honey by keeping the bees in a healthy, vigorous condition until the honey flow begins next spring.

The United States Department of Agriculture has just issued two bulletins telling how this can be done. The Federal experts recommend wintering the bees in cellars in the colder parts of the country, and packing the hives with good insulating material in protecting cases out of doors in the Central and Southern States. Complete directions are given in Farmers' Bulletin 1012, "The Protection of Bees for Outdoor Wintering," and Farmers' Bulletin 1014, "Wintering Bees in Cellars." Either or both of these bulletins will be sent on request to the Division of Publications, United States Department of Agriculture, Washington, D. C.

CARELESSNESS BREEDS FIRES.

This forest-fire prevention advice comes from the U. S. Department of Agriculture, which is aiding in the protection of woodlands through its Weather Bureau and Forest Service.

Stop and think before you throw away a match, cigarette, cigar stub, or leave a camp fire.

Fires in war time threaten human lives, homes, stock, crops, timber, labor, and war material. Carelessness and incendiarism are largely responsible. Do your bit. Be careful of fire and tell others to be careful.

Report the incendiary; he's helping the Huns.

PRACTICE THESE RULES AND BE PATRIOTIC.

Use cereals (meal, cereal breakfast foods, etc.) freely, taking pains to prepare them with great care and to vary the kind used from day to day if necessary to keep people from tiring of them.

Remember that a quart of whole milk a day for each child, to be used as a beverage and in cookery, is not too much.

Try to make the dishes served of such size that there will be enough to satisfy the appetite of the family and no unnecessary table and plate waste.

Do not be above noticing whether anything usable is thrown away with the garbage, which always shows how thriftily food is used in a household.

Many inexpensive materials can be made attractive and the diet can be pleasantly varied by a wise use of different flavorings.

"Finicky" tastes in food often prevent the use of many valuable materials.

Good food habits are an important part of personal hygiene and thrift. Children get such habits by having suitable amounts of suitable foods served to them and then being expected to eat what is set before them.

True economy and patriotism lie not only in buying wisely, but also in making the fullest possible use of what is bought.

Many so-called scrub cows, if freshened in the fall and given the right kind of feed and treatment during the winter before coming on grass for the latter part of their lactation period, would prove to be money makers. This seems to be supported fully by records of cow-testing associations.

More Legumes Needed on Upland Farms in Region of Gulf Coast

Crop yields can be materially increased on many of the upland farms of the Gulf Coast region by raising more legumes which will add nitrogen and organic matter to the soil, say specialists of the United States Department of Agriculture, who have completed a study of farm practices in the region. They found that the soils in the area studied were deficient in nitrogen and organic matter. These essentials can be easily and cheaply supplied by growing velvet beans, cowpeas, soy beans, bur clover, crimson clover, hairy vetch, and beggar weed, and by carefully utilizing all farm manures, crop residues, and other sources of humus. Farmers' Bulletin 986, which has recently been published by the Department of Agriculture, gives directions for raising these crops, together with suggestions for readjusting the cropping systems to include them.

The vegetable matter, the bulletin states, not only increases the amount of plant food, but also increases the water-holding capacity of the soil, lessens the danger of soil erosion, improves its physical condition, makes a home for necessary soil bacteria, and acts as a storehouse for plant food. No vegetable matter that can be turned under should be burned or destroyed, according to the bulletin. All stalks, leaves, straw, weeds, and other sources of humus should be plowed under. Intercropping corn and cotton with cowpeas, soy beans, peanuts and other such legumes is advisable. Winter cover crops of bur clover, crimson clover, vetch, oats, and rye are recommended. The bulletin suggests a number of crop rotations which not only provides for crops which maintain and increase soil fertility, but also crops for the market. For three-year rotations corn and velvet beans are suggested for the first and second year, and cotton, peanuts or sweet potatoes, followed by a winter cover crop, or oats followed by cowpeas or soy beans, for the third year.

Among the illustrations in the bulletin are two showing adjoining cotton fields. One field was grown on land deficient in organic matter, and produced less than 100 pounds of lint cotton to the acre. The other was grown on land which had been built up with organic matter by growing and plowing under legumes, and which produced three bales of cotton, weighing from 505 to 510 pounds each, per acre. The cotton on this field followed a crop of oats which produced 75 bushels to the acre.

PACK HIVES TO PROTECT BEES.

For wintering bees successfully in the warmer parts of the country the hives may be left out of doors in cases with good insulating material around the sides, top and bottom. Complete directions are given in Farmers' Bulletin 1012, recently issued by the United States Department of Agriculture. The packing should not be delayed too long, October being the best time in the north Central States. Four colonies are kept on one foundation, according to the bulletin, and are inclosed in one case. Insulating material, such as cork chips, fine shavings, sawdust, dry leaves, and other such substances, should be packed closely 6 to 8 inches thick about the hives. The entrances are kept open by what is known technically as a tunnel. The size of the opening is made smaller as the winter grows colder. The apiary should be protected from wind as much as possible and the case made rain-proof.

WORKING TO CONTROL CEREAL SMUTS.

The United States Department of Agriculture now has 65 men at work in the cooperative campaign for the control of cereal smuts, initiated last September. It is hoped that through seed-treatment demonstrations before farmers' organizations in rural schools and at fairs and rural conventions of other kinds a practical working knowledge of seed treatment for the prevention of the various dangerous cereal diseases may become widespread. On completion of the seed-treatment campaign in the Southern States, the agents will return to conduct seed-treatment demonstrations in the States where spring grains are grown, from about February 1 to April 15. Through cooperative work it is hoped to save 10,000,000 bushels of wheat, 30,000,000 bushels of oats and 5,000,000 bushels of barley and rye.

NINE REASONS AGAINST FIRES.

Forest fires are unnecessary and preventable.
They destroy existing forests.
They destroy the possibility of future forests.
They destroy an important market for labor.
They destroy the beauty of a region.
They destroy property.
They destroy homes.
They destroy lives.
They destroy prosperity.
They destroy foodstuffs.

Bird and Game Protectors Listed in New Directory

The nineteenth annual directory of officials and organizations concerned with the protection of birds and game in the United States, Canada, and Newfoundland, revised to August 1, 1918, has just been issued by the United States Department of Agriculture, as Document 109 of the Bureau of Biological Survey. The publication contains a list of the names and addresses of Federal and State game officials, from whom information may be obtained concerning game laws, gives dates of establishment of each State commission or wardenship, and lists of publications issued by them.

In 47 States and Territories the enforcement of game laws is intrusted to game commissions, wardens or other State officers, according to the publication. In 30 States local organizations are cooperating with the State in protecting game, and 30 States have Audubon societies. The first special game wardens were local officers appointed in Massachusetts in 1739 for the preservation of deer. Moose wardens were appointed in Maine in 1852, and ducking police in Maryland in 1872.

Settlers clearing land in or near national forests should notify forest officials before proceeding to burn brush, and in all districts having a fire warden a permit from him should be obtained before any burning is attempted. In all cases ample precautions should be taken to prevent the spread of fire.

The dairy cow requires an ounce of salt a day, and while she should be given all she needs, she should not be forced to take more than she wants. It is best, therefore, to give only a small quantity on the feed, and to place rock salt in boxes in the yard.

Safer than any sock—money in a Liberty Bond.

Committees to Control Distribution of Cotton, Buy for U. S., and Consider Prices

The War Industries Board in behalf of the Cotton and Cotton Distribution Committees, selected by the War Industries Board and approved by the President, authorizes the following:

On September 14 the President issued a statement in connection with the present cotton situation to the effect that a committee would be appointed to devise methods for (a) broadening the channels of distribution and use of the great stock of low grades now practically unmarketable, (b) eliminating speculation and hoarding and (c) apportioning the foreign orders; and that it might be a part of this committee's duty to recommend basic prices on cotton, and that if, after investigation, it be found necessary a fair price would be fixed.

Members of Committee.

With the approval of the President, the following have been appointed members of this committee, which has been designated the cotton committee: Thomas W. Page, vice chairman, United States Tariff Commission, Washington, D. C., chairman; from 1906 to date, professor of economics, University of Virginia; member of the United States Tariff Board, 1911 and 1912; at present member of the Tariff Commission. W. R. Beattie, Greenville, S. C., president of the Piedmont Manufacturing Co., a large cotton milling concern, and an executive officer in a group of other cotton mills. R. L. Bennett, Paris, Tex., a cotton grower and seed breeder, formerly connected with the agricultural colleges of Texas and Arkansas. Ward M. Burgess, Omaha, Nebr., a retail merchant connected with the Burgess-Nash Department Store and E. M. Smith & Co., of Omaha. Edward Farnum Greene, Boston, Mass., a cotton spinner and former president of the National Association of Cotton Manufacturers; at present treasurer of the Pacific Mills. J. C. Redmon, St. Mathews, S. C., a cotton grower and member of the State Legislature of South Carolina. M. P. Sturdivant, Glendora, Miss., an active cotton grower on a large scale, and the executive manager of a cottonseed oil mill owned and operated by planters. S. W. Weis, New Orleans, La., a cotton factor and member of the firm of Julius Weis & Co., one of the oldest in the New Orleans cotton trade. D. S. Murph, Department of Agriculture, secretary; specialist in cotton marketing and warehousing in the Bureau of Markets.

The President further stated that during investigation by the cotton committee and in order to avoid stagnation a separate committee would be set up with authority to buy cotton for the use of the United States Government and the allies, at prices to be approved by the President. With the approval of the President the following have been appointed members of this committee, which has been designated the Committee on Cotton Distribution: Charles J. Brand, United States Department of Agriculture, Washington, D. C., chairman. Mr. Brand has been chief of the Bureau of Markets of the Department of Agriculture since its establishment, and as such is in charge of all of the cotton handling and marketing activities of the Government, including the enforcement of the United States cotton futures act. William L. Clayton, Houston, Tex., member of one of the large and well-known cotton firms of the Southwest, Anderson, Clayton & Co., which operates extensively in Oklahoma and Texas; J. Temple Gwathmey, New York City, member of the firm of George H. McFadden & Bro., cotton merchants, engaged in the conduct of a large domestic and foreign business with headquarters at Philadelphia and New York City, and with branches at many points in the United States and at numerous points in foreign countries; Edward H. Inman, Atlanta, Ga. Mr. Inman was formerly a member of the well-known firm of cotton merchants—Inman, Howard & Inman, of Atlanta, but since the declaration of war he has severed his connection with that firm and has been active as a purchasing agent for the United States Government.

Messrs. Clayton, Gwathmey, and Inman are disassociating themselves from their business and will remain so disassociated as long as they continue in the service of the Government as members of this committee.

Resolution Adopted.

After full discussion, the cotton committee unanimously passed the following:

"Resolved, That the Committee on Cotton Distribution be authorized immediately to allot cotton as to quantity and grade to all domestic and foreign consumers, and that they also be authorized to buy cotton if and when necessary for the requirements of the United States and allied Governments.

"Resolved further, That the Cotton Committee feels that this will have an important effect in stabilizing prices, but in the meantime they will keep in close touch with the whole situation with a view of determining the effect of this action and whether price-fixing or any other measure will be necessary."

B. H. RAWL, ASSISTANT CHIEF.

The Secretary of Agriculture has announced the appointment of B. H. Rawl as Assistant Chief of the Bureau of Animal Industry. The appointment will become effective on October 1. Mr. Rawl has been Chief of the Dairy Division of the Bureau of Animal Industry since 1909 and, in addition to his new duties, he will continue to supervise the work of that division, the scope of which during the past nine years has increased sixfold and now reaches two-thirds of the States.

Mr. Rawl was graduted from the Clemson Agricultural College, South Carolina, in 1900. He later took a special course in dairy husbandry at the Pennsylvania State College and the University of Wisconsin, and served as assistant professor of animal husbandry and dairying at Clemson College from 1902 to 1905. He entered the service of the Bureau of Animal Industry as dairy husbandman in 1905 and, as indicated, was made chief of the division in 1909. He is a trustee of the Clemson Agricultural College and a member of the American Association for the Advancement of Science, of the South Carolina Agricultural Society, and of the South Carolina Live Stock Association.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces that for the continuous open competitive nonassembled examination for plant pathologist, for both men and women, for filling vacancies in the Department of Agriculture, for duty in Washington, D. C., or elsewhere, at entrance salaries ranging from $1,200 to $2,400 a year, the maximum age limit of 45 years has been eliminated, and the minimum age limit of 21 years has been reduced to 20 years.

Applicants for this examination must have reached their 20th birthday on the date of making oath to the application.

Full information in regard to this examination is contained in original announcement No. 273, a copy of which, together with the proper application blank (Form 2118), may be obtained from the Civil Service Commission, Washington, D. C.

A cage for the Kaiser—the bars on the Liberty Loan flag.

Too Much Grazing Starts Soil Washing and May Lead to Ruin of Good Ranges

Excessive grazing, which injures the vegetative cover, will frequently permit erosion to get a start on the range, and valuable pasturage will be changed by the elements to barren land, according to Bulletin 675, "Range Preservation and Its Relation to Erosion Control on Western Grazing Lands," recently published by the United States Department of Agriculture.

It is a case of killing the goose that laid the golden eggs. While topography, climate, and soil are factors in determining erosion, the combination of these factors with the vegetative growth is such that erosion is slight where the natural conditions have not been disturbed, and may be made serious by any influence which upsets the balance established by nature. Numerous instances are on record where serious erosion was unknown until the ground cover was largely destroyed, and in localities where destroyed vegetation has been reestablished serious erosion has been stopped. The reestablishment of vegetation, the bulletin points out, is extremely difficult.

The importance of preserving the upper few inches on the high ranges and with it the vegetative cover, in order to regulate the stream flow, to maintain indefinitely the forage cover for grazing, and incidentally to prevent destructive erosion, is not always fully appreciated by the stockman and farmer. The farmer stockman can not afford to do without feed from the range. The temporary larger profits that might be derived from overgrazing would soon be offset by the loss of the source of feed supply which would result.

Small Start Makes Large Loss.

Three or four seasons of excessively heavy grazing on a watershed will usually give the elements a chance to start their destructive work. Erosion, with its rush of water and débris, frequently ruins the land where the débris is deposited and puts out of commission roads, trails, power plants, and other improvements. In many localities loss of property from this source has been appalling.

The preventive measures given in the bulletin are deferred and rotation grazing, artificial seeding (in choice sites only), and proper control and distribution of stock. Where the depletion of the soil and the formation of long-established gullies make thorough revegetation impossible, destructive floods and erosion may be controlled by the total exclusion of stock, by terracing and planting, and by the construction of dams.

Much more than half the battle of preserving range is preventing erosion from getting started. Where it has full play for a number of years the attempted reestablishment of the ground cover, even though grazing is discontinued, does not always give adequate results. In such instances, which fortunately are relatively rare in this country, extreme measures, such as the combination of terracing and planting, or, in exceptional cases, the construction of dams are justified.

Nuts Real Food; Their Shells Are Needed to Help Make Gas Masks

In connection with the campaign for gathering nut shells for gas masks, it should be borne in mind that nuts are among the richest and most wholesome of our foods. Wherever possible the kernels of the native nuts should be added to the home supply of foods. Nuts are unique in being practically the only class of products which, without being cooked or otherwise especially prepared, offer a complete food to the human family, says the United States Department of Agriculture. In many parts of the country families earn considerable money during the long winter evenings by cracking black walnuts and butternuts and selling the kernels. During the winter of 1917–18 the price to the farmers ranged from 25 to 30 cents per pound.

The hard shells, not the husks, of black walnuts, butternuts, hickory nuts, Persian (English) walnuts, Japanese walnuts, and the seeds of such fruits as peaches, plums, prunes, apricots, and olives are exceedingly useful in the making of carbon for gas masks. The shells of pecans and almonds can not be used.

Seven pounds of hard nut shells, or 200 peach pits, will make enough carbon for one gas mask. Thousands of tons of coconut shells and shells of cohune nuts from tropical America, and carloads of fruit pits from the Pacific Coast are being used. Still the supply is not sufficient.

With an army of 4,000,000 men in prospect, it is evident that to provide every man with even one gas mask will require 28,000,000 pounds of nut shells or the equivalent.

County agents and field men of the United States Department of Agriculture are urged to put in a word whenever possible to stimulate the saving and assembling of such material. As a result of the campaign already launched barrels have been placed in conspicuous places in many cities and towns as depositories, and large quantities of material are being brought together.

In practically all of the Eastern States many thousand bushels of black walnuts, butternuts, and hickory nuts annually go to waste because of not being harvested. These should all be gathered and wherever practicable the best should be cracked and the kernels used as food. Nuts which cannot readily be cracked, those which have become stale with age, or those which have failed to develop plump kernels should be turned over to the Red Cross. Black walnuts and butternuts which are not to be cracked may be sent in without removing the outer husk. Arrangements for gathering and shipping nuts, nut shells and fruit pits can be made through the local Red Cross.

PEANUT BUTTER MAKES NUTRITIOUS SOUP.

Peanut butter is a wholesome and highly nutritious food not nearly as much used as it should be. Pound for pound it possesses higher food value than round steak, though it sells for a lower price. Peanut butter added to any dish raises its protein, fat, and carbohydrate value.

Tomato and Peanut Soup.

1½ cups seeded and strained tomatoes.
½ cup peanut butter.
1 level teaspoon of salt.
¼ level teaspoon of paprika.
2½ cups boiling water.

Add tomatoes gradually to the peanut butter and when smooth add the seasoning and water. Simmer for ten minutes and serve with croutons. Well-seasoned soup stock may be substituted for the water; if used the quantity of salt should be reduced.

YOUR State agricultural college has a division of extension which cooperates with the Federal Department of Agriculture in extension work in agriculture and in home economics. Are you using it? To find out how it can help you, write to your county agent, or to the director of extension at the college.

Safe Farming—Putting the profits in Liberty Bonds.

CUT WOOD, SELL IT, BURN IT—HELP SAVE COAL

The More Convenient Fuel Is Demanded by Army Trains and War Industries.

Country Districts Are Relied on to Help Save Coal by Use of Wood

The coal shortage for next winter, estimated by the Fuel Administration at about 14,000,000 tons, makes it necessary that wood should be used to save both coal and transportation. Country districts and small villages are in position greatly to help coal conservation by burning wood.

Farmers now use on their farms 83,000,000 cords of fuel wood annually. All farms should use it during the war or emergency periods, officials urge.

Any kind of coal stove or furnace can be used for burning wood in a pinch. With a careful attention to drafts and grates, the change can be made with little trouble.

On the average, according to the Forest Service, United States Department of Agriculture, a cord of wood is about equal to seven-tenths of a ton of coal. Two cords of soft wood are required to equal a ton of coal, but a cord of wood from a number of well-known kinds of trees will equal a ton of coal in heating value, and for three varieties—osage orange, canyon live oak, and black locust—a cord has a higher value than a ton of coal. Most of the oaks and hickories, as well as western yew, honey locust, blue gum, sweet birch, and a number of others are the equivalent of nine-tenths of one ton of coal.

The following have a low heating value, but are approximately equal to one-half a ton of coal: Yellow buckeye, black cottonwood, basswood, western red cedar, Alpine fir, Englemann spruce, black willow, balsam fir, Sitka spruce, aspen, and white spruce.

IMPROVE ESTATES, FURNISH FUEL.

Owners of large estates should not defer the removal from their grounds of dead and unsightly trees because they believe such improvements would not be urgent war work, say officials of the Forest Service, United States Department of Agriculture. Such work can be combined with the production of fuel wood, and no labor will be diverted from useful lines. This source of fuel supply will not damage the woods or detract from the beauty of landscape, but will utilize waste wood and keep up improvements through the period of the war.

MACHINERY HELPS MAKE FUEL WOOD

Gasoline Engine and Saw Makes Work Cheaper and Quicker.

Wood can be made into fuel much more cheaply and quickly by machinery than by hand. Officials of the Forest Service, United States Department of Agriculture, estimate that a three-man crew will cut 10 cords a day with an outfit consisting of a gasoline engine of 6 to 8 horse power, costing $275 to $300, and a 26-inch saw with its frame, costing $75.

If a double-action 500-pound power splitter (cost $300) is added to this equipment, a four-man crew will average 12 to 15 cords a day sawed into 16-inch stove lengths and split ready for use. This is at the rate of 3 to 4 cords a man in a day, while by hand labor 1 to 2 cords cut into 4-foot lengths is the average.

HOW WOOD COMPARES WITH COAL IN HEATING VALUE.

In heating value one standard cord of well-seasoned hickory, oak, beech, birch, hard maple, ash, elm, locust, or cherry wood is approximately equal to 1 ton (2,000 pounds) of anthracite coal, according to estimates by the Forest Service, United States Department of Agriculture. However, a cord and a half of soft maple and 2 cords of cedar, poplar, or basswood are required to give the same amount of heat.

One cord of mixed wood, well seasoned, equals in heating value at least 1 ton of average-grade bituminous coal.

Never run away from a fire. Fight it at once. Small fires are easier to control than large fires.

Clear your land for the plow, but don't burn up the whole country.

Improve Wood Lot When Cutting Fuel—Trees to Leave and to Take

In cutting firewood for this winter's emergency fuel supply the operation should be undertaken with the double purpose of furnishing heat and improving the farm-wood lot at the same time. The United States Department of Agriculture has issued a brief statement which tells what trees to leave and what to cut.

It recommends that the trees be marked for cutting now while the leaves are on them, even if other farm work prevents the actual felling until later, because it is easier to tell the different kinds by the foliage than by the bark. But the cutting should be done as soon as possible if the firewood is to be used this winter, so there will be some time for the wood to season.

In the New England and Middle Atlantic States the following kinds should be left standing to furnish lumber, except in the case of individual trees that are crooked, knotty, diseased, or defective; white pine, red spruce, balsam, chestnut, white oak, red oak, hard maple, yellow birch, tulip poplar, white ash, hickory, and basswood.

Trees of Less Value.

The trees of less value for lumber, or slow growing, and which should be cut are: Hemlock, arbor vitæ, black oak, scarlet oak, red maple, beech, gum, elm, gray birch, and ironwood.

In Ohio, Indiana, Illinois, and southeast Missouri save: Yellow poplar, black walnut, red gum, white oak, red oak, cottonwood, hickory, white ash, hard maple, and basswood.

In these States the trees to be cut from the farm wood lot for firewood are black oak, red elm, beech, and red maple.

In the northern parts of Michigan, Wisconsin, and Minnesota the trees to be saved for lumber are: White pine, red pine, aspen, yellow birch, basswood, red oak, white ash, and hard maple.

Farmers in the northern section of these States may well cull out for firewood and thus improve the value of their lumber stands the following trees: Jack pine, hemlock, scarlet oak, black oak, elm, and beech.

In the southern portions of these Lake States—Michigan, Wisconsin, and Minne-

sota—farmers would do well to save: White oak, red oak, white ash, basswood, hickory, and hard maple.

The trees that may be removed for fuel in the southern farming section of these States are: Black oak, red elm, and beech.

SHOULD NOW INSURE WOOD SUPPLY

Communities Needing Fuel Should Not Delay Contracts With Farmers.

Communities threatened with serious fuel shortage should not wait until winter, but should act now to stimulate the cutting of wood by farmers, say officials of the Forest Service, United States Department of Agriculture.

It is believed that farmers in many sections will cut all the wood needed for the community if they are guaranteed a minimum price sufficient to allow a fair profit. Such contracts should be made as early as possible, so that the wood may be properly seasoned.

Because few farmers get out enough wood to require a stove-wood mill, consisting of buzz saw and power splitter as part of their equipment, it is suggested that a group of farmers cooperate in operating such a plant.

How to Make Cordwood is Told in Circular Offered Free to All

Methods of cutting cordwood are discussed in a circular, "Emergency Fuel from the Farm Woodland," issued by the United States Department of Agriculture to aid farmers in helping to meet the fuel shortage.

The most common method of making cordwood is to cut the trees into 4-foot lengths with the ax and split the larger pieces. The pieces are then piled in a standard cord, which is 8 feet long, 4 feet high, and 4 feet wide. The contents are 128 cubic feet, of which about 70 per cent is wood and 30 per cent air. Wood cut 4 feet long can be sold to brickyards, limekilns, metal-working plants, and other industries, but is too large for household use. This method is used chiefly where the tree growth is comparatively small, as in second growth, because such wood splits easily.

Another method, and one better adapted for old-growth hardwoods, which are difficult to split, is to saw the tree into logs of convenient lengths, say, from 10 to 15 feet. These are "snaked" out to the edge of the woodland and there sawed and split into lengths proper for the stove or furnace. The sawing is usually done by machine, driven either by gasoline or by electricity. The wood is piled 4 feet high and 8 feet long, such a pile being called a "stove wood" or "running" cord or "run." When the wood is sawed into 16-inch lengths, as is customary with stove material, three runs are theoretically equivalent to 1 cord. Actually they contain somewhat more wood, since small pieces can be packed more closely than larger ones.

Copies of the circular may be obtained free from the Division of Publications, United States Department of Agriculture, as long as the supply lasts.

WOOD FUEL A FARM PRODUCT.

Farmers are asked again to help out in the fuel shortage by producing more wood. The scarcity of labor makes this a serious problem, but the prices of wood are such that considerable sacrifice can be made to get wood. The Fuel Administration announces that many important industries will be short of coal. Wood will therefore be used industrially on a larger scale than ever before. Many manufacturing concerns in Massachusetts used wood mixed with soft coal last winter. Although the use of wood increases the expense, it is far preferable to closing down an essential industry.

From the farmers' standpoint this market is a desirable one, as 4-foot wood is used. The domestic requirements for wood will undoubtedly also be greater than ever. For this purpose wood in short lengths is required, and can most economically be produced with the use of a power mill. In many communities municipal wood yards were established last winter. The farmers brought their wood in to these yards in log lengths, and sold it to the municipality. It was sawed by a municipal machine and sold at cost. In this way the farmers were guaranteed a market for their wood, and were relieved of the burden of sawing or investing in the necessary machinery. There should be an extension of this idea during the coming winter as a means of saving labor.

COTTONSEED MEAL MORE NUTRITIOUS THAN COTTONSEED FEED; WORTH MORE

Cottonseed meal contains more protein, the chief food constituent of cotton seed, and less fiber than does cottonseed feed. Cottonseed meal is generally recognized as a product of the cotton seed only, composed principally of the kernel, with such portions of the hull as is necessary in the manufacture of oil, and as containing at least 36 per cent protein. Cottonseed feed, which may more properly be labeled "cottonseed meal and hulls," is generally recognized as a mixture of cottonseed meal and cottonseed hulls, containing less than 36 per cent protein. If to cottonseed meal, as defined above, cottonseed hulls are added, the mixture can not be labeled as cottonseed meal, under the terms of the Federal Food and Drugs Act and the food laws of many States.

Buyers should distinguish carefully between cottonseed meal and cottonseed feed, according to officials of the Bureau of Chemistry, United States Department of Agriculture. While cottonseed feed containing a reasonable quantity of cottonseed meal is a good feed, the hulls have very low feeding value as compared with the meal. The mixture having less food value should sell for a less price than cottonseed meal. Buyers in many instances failing to distinguish between cottonseed meal and cottonseed feed have paid as much, or nearly as much, for the feed as for the meal. This has been the case especially when the manufacturer of cottonseed feed has sold it under the designation "cottonseed feed meal."

FALL IS TIME FOR PLANTING NARCISSUS AND TULIP BULBS

Tulip bulbs should be planted in October, preferably about the middle of the month, and narcissus bulbs may be planted up to the middle of October, but preferably about the first of the month, according to specialists of the United States Department of Agriculture.

The bulbs should be planted in loose, rich soil, devoid of rank, or unrotted, or poorly incorporated manures. It should be dug to a depth of from 12 to 15 inches. The tulip bulbs should be set 5 inches apart and 4 inches deep and the narcissus bulbs about 10 inches apart and 5 inches deep.

If they are to be grown in pots or window boxes, light, rich soil should be used. Place 1 to 2 inches of cinders or broken pots in the bottoms of the pots or boxes to insure good drainage. After planting, place the pots or boxes out of doors and cover them with about 4 inches of ashes or sand; or they may be placed in a dark cool room or cellar for a few weeks, until the bulbs have formed a quantity of roots. They may then be brought into the light and heat for flowering. Keep the soil well moistened from time of planting, but avoid overmoistening, for if kept too wet the bulbs will decay.

THE man who would like to burn coal because it is easier and handier, but who thinks enough of his country and the boys over there to shoulder his ax, brave the winter wind, and go out to cut wood in order to save coal, is helping to win the war.

NAMES AGRICULTURAL ADVISERS FOR DISTRICT DRAFT BOARDS

(*Continued from page 1.*)

Idaho

District board, Division No. 1, with headquarters at Sandpoint, Idaho.

Agricultural adviser, A. W. B. Kjosness, Moscow, Idaho.

District board, Division No. 2, with headquarters at Boise, Idaho.

Agricultural adviser, L. L. Williams, Boise, Idaho.

Indiana

John Brown, Monon, Ind.; agricultural adviser to district board for Division No. 1, with headquarters at La Porte, Ind.

Will Johnson, Fort Wayne, Ind.; agricultural adviser to district board for Division No. 2, with headquarters at the Physicians Defense Building, Fort Wayne, Ind.

Maurice Douglass, Flat Rock, Ind.; agricultural adviser to district board for Division No. 3, with headquarters in the State House, Indianapolis, Ind.

R. A. Simpson, Vincennes, Ind.; agricultural adviser to district board for Division No. 4, with headquarters at Vincennes, Ind.

Iowa

Harvey J. Hess, Waterloo, Iowa; agricultural adviser to district board for the Northern District, with headquarters at 310 March Place Building, Waterloo, Iowa.

Grant Chapman, Bagley, Iowa; agricultural adviser to the district board for the Southern District, with headquarters at the State House, Des Moines, Iowa.

Kansas

W. J. Tod, Maple Hill, Kans.; agricultural adviser to district board, Division No. 1, with headquarters on the second floor of the Smith Building, Topeka, Kans.

W. T. Edwards, Wichita, Kans.; agricultural adviser to district board, Division No. 2, with headquarters on the third floor of the Federal Building, Wichita, Kans.

Louisiana

L. E. Perrin, Ville Platta, La.; agricultural adviser to district board for Eastern District, Division No. 1, with headquarters at 300 Federal Building, New Orleans, La.

J. A. Redhead, University Station, Baton Rouge, La.; agricultural adviser to district board for Division No. 2, with headquarters at the Capitol, Baton Rouge, La.

R. T. Douglas, Gilliam, La.; agricultural adviser to district board for Western District, with headquarters at City National Bank Building, Shreveport, La.

Maine

Frank S. Adams, Bowdoinham, Me.; agricultural adviser to district board for Division No. 1, with headquarters at the State House, Augusta, Me.

Guy C. Porter, Holton, Me.; agricultural adviser to district board for Division No. 2, with headquarters at Federal Building, Bangor, Me.

Maryland

Asa B. Gardiner, 524 North Calvert Street, Baltimore, Md.; agricultural adviser to district board, Division No. 1, with headquarters seventh floor, American Building, Baltimore, Md.

B. John Black, Roslyn, Md.; agricultural adviser to district board, Division No. 2, with headquarters in the State House, Annapolis, Md.

A. W. Sisk, Preston, Md.; agricultural adviser to district board, Division No. 3, with headquarters at Denton, Md.

Massachusetts

James Campbell, South Deerfield, Mass.; agricultural adviser to district board, Division No. 1, with headquarters at 31 Elm Street, Springfield, Mass.

George F. Story, Worcester, Mass.; agricultural adviser to district board, Division No. 2, with headquarters at 1020 Slater Building, Worcester, Mass.

George Averill, Andover, Mass.; agricultural adviser to district board, Division No. 3, with headquarters in County Court House, Lawrence, Mass.

J. W. Stone, Watertown, Mass.; agricultural adviser to district board, Division No. 4, with headquarters in the Tremont Building, Boston.

Harry F. Arnold, South Braintree, Mass.; agricultural adviser to district board, Division No. 5, with headquarters at 514 Tremont Building, Boston.

Brooks Farrar, South Easton, Mass.; agricultural adviser to district board, Division No. 6, with headquarters at City Hall, Taunton, Mass.

Michigan

C. L. Brody, Port Huron, Mich.; agricultural adviser to district board (Eastern), Division No. 2, with headquarters at 2130 Penobscot Building, Detroit, Mich.

A. B. Cook, Owosso, Mich.; agricultural adviser to district board (Eastern), Division No. 3, with headquarters in the Federal Building, Lansing, Mich.

T. F. Marston, Bay City, Mich.; agricultural adviser to district board (Eastern), Division No. 4, with headquarters in Eastern City Hall, Bay City, Mich.

James J. Jakway, Benton Harbor, Mich.; agricultural adviser to district board (Western), Division No. 1, with headquarters at 406 Peck Building, Kalamazoo, Mich.

R. D. Graham, Grand Rapids, Mich.; agricultural adviser to district board (Western), Division No. 2, with headquarters in the city hall, Grand Rapids, Mich.

F. H. Vandeboom, Marquette, Mich.; agricultural adviser to district board (Western), Division No. 3, with headquarters at the Michigan College of Mines, Houghton, Mich.

Mississippi

James A. Tanner, Agricultural College, Miss.; agricultural adviser to district board for the Northern District, with headquarters at Tupelo, Miss.

J. M. Taylor, Port Gibson, Miss.; agricultural adviser to district board for the Southern District, with headquarters at Vicksburg, Miss.

Nevada

Jay H. Clemons, of Reno, Nev.; agricultural adviser to the Nevada district draft board, with headquarters at Reno, Nev.

New Jersey

D. Y. Lewis, Westwood, N. J.; agricultural adviser to district board, Division No. 1, with headquarters at City Hall, Jersey City, N. J.

O. M. Bowen, Greystone Park, N. J.; agricultural adviser to district board, Division No. 2, with headquarters in the Mutual Benefit Building, Newark, N. J.

Josiah T. Allinson, Yardville, N. J.; agricultural adviser to district board, Division No. 3, with headquarters at 119 West State Street, Trenton, N. J.

North Dakota

Walter Reed, Amenia, N. Dak.; agricultural adviser to district board, with headquarters at Bismarck.

South Carolina

J. R. Conner, Eautawville, S. C.; agricultural adviser to district board for the Eastern District, with headquarters at Columbia, S. C.

Lowndes Browning, Union, S. C.; agricultural adviser to district board for the Western district, with headquarters at Greenwood, S. C.

South Dakota

T. J. Frick, Yankton, S. Dak.; agricultural adviser to district board, with headquarters at Sioux Falls.

Tennessee

H. K. Bryson, Nashville, Tenn.; agricultural adviser to district board for the Middle District, with headquarters at Fourth and First National Bank Building, Nashville, Tenn.

A. N. Jackson, Louisville, Tenn.; agricultural adviser to district board for the Eastern District, with headquarters at the Federal Building, Knoxville, Tenn.

J. P. Matthews, Oakland, Tenn.; agricultural adviser to district board for the Western District, with headquarters at the Y. M. C. A. Building, Memphis, Tenn.

(*Continued on page 16.*)

SURVEY SHOWS WHEAT STOCKS NEARLY TRIPLE 1917 FIGURES

Increase Due to Bigger Yield, Earlier Season, and More Rapid Movement

Commercial Supplies of Corn, Oats, and Rye Also Greater—Other Grains and Commodities Treated in Report

The commercial stocks of wheat reported to the Department of Agriculture in a food survey dated September 1, 1918, amounted to 114,331,842 bushels. These figures refer to stocks actually reported and do not represent the total commercial stocks of the country, nor do they include stocks on farms on the date of the survey. The stocks reported were held by 11,271 firms, consisting of elevators, warehouses, grain mills, and wholesale dealers, and were equal to 296.6 per cent of the stocks held by the same firms on September 1, 1917, or nearly three times as large as the stocks on hand a year ago.

Survey and Visible Supply Figures Compared.

The commercial visible supply figures, as published by the Chicago Board of Trade for the nearest date, show 48,-821,000 bushels of wheat as against 5,-058,000 bushels a year ago, and the corresponding Bradstreet figures for 1918 show 54,236,000 bushels as against 10,-315,000 bushels for 1917. These figures, as well as the results of the more extensive survey, show a very great relative increase in the commercial stocks of wheat on September 1 this year as compared with the same date in 1917. This increase, as pointed out in connection with the report for August 1, is due to an earlier season and a more rapid movement of grain into commercial channels, as well as to an increased yield.

Other Cereals, Flour, and Corn Meal.

The commercial stocks of other cereals reported for September 1, 1918, according to the department statement, were as follows: Corn, 16,715,978 bushels; oats, 64,683,859 bushels; barley, 16,299,104 bushels; and rye, 4,149,612 bushels. These stocks represent the following percentages of the corresponding stocks on September 1, 1917: Corn, 208.6 per cent; oats, 140.1 per cent; barley, 84 per cent; and rye, 152.8 per cent.

The commercial stocks of flour and corn meal as reported for the survey were: Wheat flour, white, 4,539,328 barrels; rye flour, 225,127 barrels; corn flour, 147,465 barrels; barley flour, 167,158 barrels; rye flour, 225,127 barrels; corn flour, 30,522,276 pounds; corn meal, 72,642,853 pounds; buckwheat flour, 2,384,530 pounds; mixed flour, 8,333,324 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 140 per cent; whole wheat and graham flour, 164.7 per cent; barley flour, 2,690.4 per cent; rye flour, 274.4 per cent; corn flour, 920.3 per cent; corn meal, 189 per cent; buckwheat flour, 81.7 per cent; mixed flour, 202.2 per cent.

Wholesale Stocks of Selected Commodities.

Elevators, warehouses, and wholesale dealers reported stocks of beans amounting to 14,477,630 bushels, while wholesale grocers and warehouses reported the following commodities in the amounts indicated: Rice, 56,897,261 pounds; rolled oats, 44,680,074 pounds; canned salmon, 84,195,180 pounds; canned tomatoes, 61,-692,361 pounds; canned corn, 23,063,966 pounds; sugar, 311,194,430 pounds. These stocks represent the following percentages of the corresponding stocks on hand September 1, 1917: Beans, 156.1 per cent; rice, 30.7 per cent; rolled oats, 126.5 per cent; canned salmon, 104.5 per cent; canned tomatoes, 107.8 per cent; canned corn, 71 per cent; sugar, 99.9 per cent.

SLACKER HENS ELIMINATED.

Sell your slacker hens and buy war-savings stamps is the advice of the county agent in Middlesex County, Conn. The county farm bureau is arranging slacker-hen demonstrations showing how these hens may be detected and disposed of to advantage. Good fat hens will bring 35 to 38 cents per pound, live weight, at the present time. In these days when idleness means direct loss the farmer can not afford to support loafers on the job, says the county agent.

During the winter, when cows are stabled the greater part of the time, and unless arrangements have been made to keep water before them all the time, they should be watered two or three times a day. If possible, the water should be 15 to 20 degrees above the freezing point, and should be supplied at practically the same temperature every day.

DON'T BURN OUR RESOURCES.

Fires destroy property. Prevent fires! Be careful with fire. Have you put out your camp fire? Break your match in two. Fighting forest fires is hard work. Save your strength. Don't cause fires. Fight the Kaiser.

FILL NATION'S PORK BARREL BY GOOD HOG MANAGEMENT

Farmers Advised to Save Only Desirable Sows for Breeding Use

Letting the Animals Rustle for Part of Their Feed Gives Exercise and Improves Product—Methods Recommended

Sensible hog management saves only the most desirable sows for permanent use in the breeding herd, according to the specialists of the United States Department of Agriculture who are striving to effect maximum pork production under economical methods.

The methods of many hog raisers, they point out, are out of joint with the almanac. That is to say, many farmers waste valuable time—perhaps too late—in trying to cure hog ailments, when they readily could have prevented these troubles by sensible and seasonable management. The skater who sharpens his blades after spring has come in order to enjoy the ice of the past winter is of the same pattern as the hog raiser who in the spring wishes that he had practiced timely management during the previous period of cold weather.

The Federal Department advises that all breeders should exercise conscientious and painstaking care in the selection of sows for permanent maintenance in the breeding herd. The animals should be of good length, full depth, showing plenty of vitality as well as the inclination to take sufficient exercise. They should not be skimped on starvation rations or half feeds but rather should receive a full fattening allowance which, broadly interpreted, means that the porkers should receive about all that they will eat with respect to economical methods of pork production.

Green Foods Essential.

It is highly desirable that the sows to be bred in the fall should have access to green forage crops as long as any such materials are available. The sow realizes immeasurable benefit from rustling about for the bulk of her feed. The method insures to the female porker the exercise necessary to maintain her in the condition favoring good litters of pigs. As, on many hog farms relatively little green feed is available during the pig-raising periods, it is imperative that the individual farmer provide plenty of food in balanced mixture, in addition to making it necessary for the sows to exercise in the procuring of this food. Many successful farmers maintain that during the winter season they feed their brood sows all the corn that the animals will

eat. Some fallacy may be apparent in this statement unless the reader is thoroughly familiar with the conditions under which this plentiful use of grain is practiced. The general plan of feeding corn is to scatter it in the ear over the fields where the sows may hustle after it. It is hard work to scoop corn from a wagon which is driven through the field. A much easier and more practical plan is to fill the manure spreader with ear corn and to adjust the machine so that the grain will be well scattered. This process possibly may look wastefnl, especially in view of the current price of corn, but if the feeder will be careful and not distribute an excessive quantity he will find that the hogs will make efficient use of all this grain.

The department specialists recommend the supplementary use of tankage, shorts or middlings, oil meal, and ground alfalfa hay with the corn. It is hoped that fish meal may also become available soon for the use of hog growers, as this material has been demonstrated useful as tankage for pork production. Under existing freight conditions it wonld be impracticable to attempt the distribntion of fish meal among the central western hog producers, although it can be used successfully in the Atlantic and Gnlf coast States.

Use of Alfalfa.

Careful test by the Department of Agricnlture indicates the valne of grinding alfalfa hay, soaking it for 24 hours in barrels containing hot water, adding a little salt, and possibly one-half bnshel or more of shorts to a barrel of feed and giving the mixtnre to the sows in the form of a thick slop. It is suggested that the preferable time for feeding this slop is the morning, so that during the balance of the day the animals can rnstle about for corn. Good alfalfa hay shonld also be available in convenient racks so that the sows can eat this ronghage as they please.

One of the most important matters, and undonbtedly the one which is most commonly neglected in the proper handling of hogs, is to supply the porkers with an abundance of clean, pure drinking water. For this purpose some automatic watering device or home-made convenience of this nature shonld provide the hogs constantly with water. Without question, water is the cheapest material used in pork prodnction, and the importance of having it supplied in quantity and proper qnality can not be overestimated. Hogs should not be forced to drink from an icy tank nor shonld they be provided with only a limited supply once or twice a day. A tank heater or a properly protected gravity system will control the former evil, while a permanent and dependable supply of water will overcome the latter.

American Farmer's Responsibility.

At present the stnpendous task of filling the world's pork barrel falls to the lot of the American farmer. This result is possible only through a markedly increased production. According to the opinion of the department officials there is no more patriotic duty that the American hog grower can perform than to accord special and undivided attention to every little detail of hog management during the coming winter and spring, so that the sows may be properly attended to, favoring maximum litters which may be grown to matnrity with a minimum of mortality. By wisely selecting the brood sows for the pig crop of next spring and by properly caring for the animals dnring the winter and seeing to it that every pig is saved at farrowing time, the American hog raiser will not only be performing valuable services for this country and the allies, but they also will be laying up funds for investment in Liberty bonds and war-savings stamps.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(Continued from page 4.)

onstration work. At present 65 men are working in the 8 different districts into which the United States is divided. The men in each district work directly under the leadership of a district captain, who is responsible for the making of all necessary plans and arrangements with the State extension director incident to routing the men and attending to the details of their cooperative relationships with the conntу agents.

All of the smut-control men were, during the summer season, engaged in a nation-wide cereal-smnt survey, the purpose of which was to determine the distribution of and the damage resulting from the several cereal smnts and other easily preventable cereal diseases. Much of their work during the course of the summer has been directly concerned with checking up resnlts of the seed-treatment work of last fall, winter, and early spring. The reports from these field men indicate an unexpected prevalence of bunt and loose smut of wheat, the smuts of oats, covered smut of barley, and the stripe disease of barley. All of these diseases, except loose smut of wheat, are easily controlled by the use of formaldehyde. Prior to the completion of the field-survey work, each district captain arranged with the director of extension, in each State requesting Federal aid, for the conduct of a seed-treatment campaign dnring the coming fall and winter months. The plan has been to have all arrangements incident to the conduct of the seed-treatment campaign in any given State made in conference between the Federal representative—in this case, the district leader—the director of extension, the State or extension pathologist, and, if possible, the county agent leader or any others directly concerned.

It is hoped that by conducting seed-treatment demonstrations before farmers' organizations, rural schools, movable schools, connty and State fairs, county agent meetings, and rnral conventions of one sort or other, a practical working knowledge of seed treatment for the prevention of these diseases may become widespread. In some instances, where farming is condncted on an extensive scale, it has been fonnd necessary to have the men make contact directly with the farmers themselves, but, in most cases, this is not practicable.

Bulletins, circulars, and seed-treatment cards will be distributed as desired to the farmers throngh the extension department of each State. Posters, handbills, circulars, or other pnblished matter of a strictly local significance will be published by the State, following a joint arrangement made between the Federal smut-sqnad district leader and the director of extension. In some instances the district leaders have been snpplied with lantern slides illustrating the different smuts and approved methods for their control. It is the plan to prepare additional sets of lantern slides for use in connection with lectnres and seed-treatment demonstrations to be carried on this fall and winter. In those States where spring grains are grown the men will, on completion of the seed-treatment campaign in the Sonthern States, return to condnct seed-treatment demonstrations from abont February 1 to April 15. All of this work is carried on in cooperation with the State extension service throughout the conntry. By effective, concerted action this work should resnlt in the saving of at least 10,000,000 bushels of wheat, 30,000,000 bushels of oats, and 5,000,000 bnshels of barley and rye.

WHAT the chamber of commerce secretary is to civic affairs in the town the county agent is to all matters that pertain to rural betterment with this difference—that the county agricultural agent directly represents the National Government.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Standard Grades for Rice.

Standards for milled rice have been prepared by the Bureau of Markets, approved by the Secretary of Agriculture, and adopted by the Food Administration for use in determining the quality of milled rice submitted by rice mills, brokers, and dealers in filling their contracts for the United States armed forces and the allies. These grades were requested by the Food Administration and published by the Bureau of Markets as "Markets Document No. 15." At the present time these standards are only permissive. It is expected, however, at a later date, possibly next spring, that these grades shall be formally announced, hearings held for suggested changes, and official grades promulgated for milled rice in the United States under the grain standards act. This act provides for the Federal supervision of grading, but applies only in the settlement of appeals and disputes.

Sold Jars of Fruit for Service Flag.

The members of the Livingston County (Ky.) home demonstration clubs sold enough jars of fruit this past summer to buy the material for a county service flag. The flag was then made by committees from these clubs. At the presentation it was carried by the canning club girls dressed in their uniforms into the court room, where exercises were held. Extra stars are added from time to time as the boys depart for the Army.

County Agent the Keystone.

That the importance of the county agent is recognized as the keystone in the great agricultural structure of this country, between the farmer at the basis of food production and the nationally organized forces of agriculture, is shown by a telegram recently sent by Secretary Houston to the Missouri farm bureau associations.

The executive committee of these associations, in conference at Warrensburg, Mo., pledged their complete support to the national agricultural war program. In reply to their resolution, the Secretary of Agriculture sent them the following telegram:

"Your patriotic resolution pledging complete support of the Missouri Farm Bureau Associations to our Government in carrying out the Nation's agricultural war program is greatly appreciated. The Farm Bureaus in the Northern and Western States are doing excellent work and their cooperation with the county agricultural agents who are the Nation's local representatives in war work relating to agriculture is very essential. May I therefore urge that you cooperate with your State Agricultural College in bringing to the attention of all Missouri farmers, especially in counties not having farm bureaus, the importance of every Missouri county being provided with a county agent and a strong farm bureau before next spring's seeding, since these are the principal local agencies for increasing food production to help win the war.

"D. F. HOUSTON, *Secretary.*"

No Statement on Cotton Price.

A statement concerning cotton price fixing appeared in a Washington, D. C., paper on Saturday, September 21, to the effect that it was understood that Secretary Houston had expressed the opinion that 25 cents would be a fair price for this year's cotton. This statement, and any other statement that may have been made purporting to represent the views of Secretary Houston as to a price for cotton, if any is to be fixed, is utterly without foundation. The Secretary has expressed no opinion as to a price for cotton.

Effects of Grain Smuts in New York.

Cereal smut surveys have been carried out during July and August in all but four counties of New York State by the office of cereal investigation of the U. S. Department of Agriculture in cooperation with the county agents and farm bureaus. The immediate object of this survey is to determine the prevalence of smut in each county and the number of farmers who treat their seed. Present indications are that there is an average of 3.5 per cent of smut in oats; barley is affected much worse, averaging 5 per cent, while wheat is not badly diseased and will not warrant an extensive campaign this fall. The survey shows that seed-treatment demonstrations are needed in many counties, and a seed-treatment campaign is planned for next spring. This work will be done in direct cooperation with the county agents. Specific reports of the conditions found in his county have already been made by the plant-disease specialists to each county agent.

The four counties not covered include those wholly occupied by cities or by the mountains and forests of the Adirondack region.

OUR boys abroad are investing the defenses of Hun strongholds. Are you investing in Liberty Bonds over here?

Minnesota's Agricultural War Program.

The organization of Minnesota farmers to bring about the maximum production of food crops during the coming year was the purpose of a recent meeting of the county farm bureaus and county agents of the State held at the Minnesota University Farm. The meeting was in response to the expressed hope of the Federal Department of Agriculture that this winter would see a county agent in every county in the United States in order to secure the greatest possible efficiency in the war program for agricultural production. On November 1, 1917, 18 counties in Minnesota were permanently organized with county agents at work. On January 24, 1918, 34 additional counties were organized and have either selected or are ready to select their agents. In addition, 25 more counties are in process of organization, expecting to secure the required membership. This leaves only nine counties in the State which have not yet organized.

The adoption of a State-wide emergency war program for county work was the feature of the conference between county agents, farm-bureau delegates, and experiment station officials—a program divided into seven definite projects which the war emergency has brought to the front. The projects are as follows: (1) The planting of good seed. (2) The increase of the acreage of wheat this spring, the maintenance of last year's acreage of corn, and, if necessary, the increase of the acreage of rye next fall. (3) Solving the labor problem, so far as possible, within the county itself. (4) More and better live stock. (5) The timely repair

and proper maintenance of farm implements and machinery. (6) The maintenance of home gardens. (7) The fullest cooperation of every man, woman, and child in the county in the measures advanced by the Federal authorities in food growing and food saving. This program, to which every patriotic farmer in the State will subscribe, will be carried on under the leadership of the local farm bureaus with the aid of the county agents.

To Show Killing Frost in Fall.

The Weather Bureau will publish this fall in its National Weather and Crop Bulletin a series of charts showing for the country east of the Rocky Mountains the southward progression of the earliest killing-frost date line and the total area covered by killing frost to the date of each issue. These charts are expected to be of much interest and value, as they will indicate the time of the ending of the growing season for summer crops this year in the various sections of the country. Much loss occasionally comes from early frosts, and interest is unusually great this year because of the possibility of frost damage affecting the food supply. The National Weather and Crop Bulletin will be published weekly until October 9, and thereafter monthly.

"Cootie" Has High Reproductive Power.

The seriousness of the "cootie problem"—demanding attention from American Army officers and scientists in this country and abroad—is indicated in experiments recently completed by an entomologist of the United States Department of Agriculture. These experiments support the belief that the fecundity of the body louse has been greatly underestimated.

In a period of 25 days one "cootie" deposited 276 eggs—an average of 11 a day—with a maximum of 14 in 24 hours. The period from deposition of the eggs to the final molt was 15 days. Only 16 days elapsed in the period of development from an egg to the egg-laying adult.

The "wristlet method" was used in this experiment. The entomologist watched the emergence of the larvæ from eggs, and allowed the larvæ to feed from his arm through the periods of their life cycle.

"Shock" Troops Save Wheat.

One hundred and seventy-four "shock" troops, made up town business men, went to the surrounding wheat fields from Boonville and Newburg, Ind. These men put 400 acres of heavy wheat in the shock and also were of value in the hay field. On several evenings four men went out after 6 o'clock and put in five loads of hay. Aside from this night work, about 50 business men, ministers, school-teachers, and others went to the fields for all-day work running binders. Through this whole-hearted cooperation between town and country every call for labor was met.

Bees Do Better Than Last Year.

The condition of fall honey plants this year is somewhat lower than a year ago. About 37 pounds of surplus honey per colony of bees was the estimated average yield by September 1 this year, the Bureau of Crop Estimates announces. This compares with 36 pounds to the same month in 1917 and 46 pounds in 1916.

How the Forest Service Helps in War.

The Forest Service of the United States Department of Agriculture is mobilizing the country's forest resources for war by helping the War and Navy departments and munitions manufacturers get the kinds and quantities of wood needed for rifles, airplanes, wheels, and other specialties; finding out what kinds and grades of wood are suitable for wartime's special requirements; training inspectors of wood materials; improving timber specifications; and investigating and testing material, processes, and products used in manufacture of war supplies derived in whole or in part from wood. It is also stimulating the production of meat, wool, and hides on National Forest ranges; cooperating with stockmen to lower losses from poisonous plants; aiding the Fuel Administration to increase fuel supplies through use of wood; and is teaching the conservation of natural resources. It has helped recruit two regiments of forest engineers for service abroad, and has contributed more than 375 members to the colors.

Decline in Stock on Farms.

On about 5,000 representative farms scattered throughout the United States, reporting to the Bureau of Crop Estimates, the decline in the number of cattle was 0.8 per cent from last July 1 to August 1, 2.9 per cent in hogs, and 3.3 per cent in sheep.

NAMES AGRICULTURAL ADVISERS FOR DISTRICT DRAFT BOARDS

(Continued from page 12.)

Texas

G. H. Alford, Dallas, Tex.; agricultural adviser to district board for the Northern District, with headquarters at Fort Worth, Tex.

Judge Charles Rogan, Austin, Tex.; agricultural adviser to district board for the Western District, with headquarters in the Federal Building, Austin, Tex.

H. B. Marsh, Tyler, Tex.; agricultural adviser to district board for the Eastern District, with headquarters in the Federal Building, Tyler, Tex.

Dr. W. R. Eichardt, Webster, Tex.; agricultural adviser to district board for the Southern District, with headquarters at room 622, Binz Building, Houston, Tex.

Utah.

A. W. Ivins, 46 East South Temple Street, Salt Lake City, Utah.; agricultural adviser to district board, with headquarters at Salt Lake City, Utah.

Vermont.

O. L. Martin, Plainfield, Vt.; agricultural adviser to district board, with headquarters at Montpelier, Vt.

Virginia.

N. E. McGuire, Roanoke, Va.; agricultural adviser to district board for Western District, with headquarters at 202 First National Bank Building, Roanoke, Va.

J. B. Watkins, Midlothian, Va.; agricultural adviser to district board for Eastern District, with headquarters at 425 Post Office Building, Richmond, Va.

Washington

J. K. McCormack, Old National Bank Building, Spokane, Wash.; agricultural adviser to district board for the Eastern District, Division No. 1, with headquarters in room 208, Federal Building, Spokane, Wash.

H. M. Gilbert, Yakima, Wash.; agricultural adviser to district board for the Eastern District, Division No. 2, with headquarters at Yakima, Wash.

J. C. Hulbert, Mount Vernon, Wash.; agricultural adviser to district board for the Western District, Division No. 1, with headquarters at 118 Public Safety Building, Seattle, Wash.

J. A. Scollard, Chehalis, Wash.; agricultural adviser to district board for the Western District, Division No. 2, with headquarters at 1607 National Realty Building, Tacoma, Wash.

West Virginia.

A. R. Jacobs, R. F. D., Wheeling, W. Va.; agricultural adviser to district board for the Northern District, with headquarters at Clarksburg, W. Va.

Peter Steenbegen, Point Pleasant, W. Va.; agricultural adviser to district board for the Southern District, with headquarters at Charleston, W. Va.

Wyoming.

J. C. Underwood, Underwood, Wyo.; agricultural adviser to district board, with headquarters at Cheyenne, Wyo.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI · OCTOBER 16, 1918 · No. 11

OWNERS GET INDEMNITY FOR TUBERCULAR CATTLE KILLED

U. S. to Pay Part of Value if State or Other Government Cooperates

Provision Expected to Remove Much Opposition to Disease Eradication Work—Accrediting Rules Adopted by Breeders

The 1919 agricultural appropriation bill just passed by Congress contains an item expected to be of great importance in the Federal and State campaign to eradicate tuberculosis among cattle and swine. It provides that the Federal Government shall pay indemnity to owners whose cattle are slaughtered because they have been found infected with tuberculosis.

The Department of Agriculture is to pay one-third of the difference between the appraised value of the cattle and the salvage value of the slaughtered animals, provided that the State, county, or municipality in which the cattle are owned and kept is cooperating in the tuberculosis work and pays at least an equal amount to the owner. In no case is the Federal Government to pay more to the owner than is paid by the State, county, or municipality. No payment by the Federal Government is to be more than $25 for any grade animal or more than $50 for any pure-bred animal, and no payment is to be made unless the owner has complied with all quarantine regulations.

Expected to Remove Opposition.

This provision is expected to remove much of the opposition among cattle owners that has hindered tuberculosis eradication work. Through it the Federal Government, the State, county, or municipal governments and the owners of cattle will share in the loss resulting from slaughtering infected animals for the protection of other animals not infected.

Another important development expected to hasten tuberculosis eradication was the unanimous adoption by breeders and live-stock sanitarians of national reputation of regulations for accrediting pure-bred herds of cattle. This action, taken last December, marked the coordination of efforts of individuals and the State and Federal Governments for the suppression of tuberculosis in pure-bred animals.

On July 1, the department issued its first list of herds officially accredited as free from tuberculosis. The herds numbered on that date approximately 240. The list also named herds that had passed one successful test. They must pass another annual test successfully before being placed on the accredited list.

Annual Loss is Big.

The annual loss from tuberculosis among cattle and hogs is reckoned at $40,000,000 in the United States. The Federal campaign to eradicate the disease is of comparatively recent beginning. It has been divided into three well-defined projects. The first project is the eradication of tuberculosis from individual herds of pure-bred cattle; the second is the eradication of cattle tuberculosis from circumscribed areas; the third is the eradication of tuberculosis among swine.

It is estimated by officials in close touch with available records that 15 per cent of pure-bred cattle in this country are affected with tuberculosis. In grade cattle and swine the percentage of infection is gradually increasing, as shown by post mortem records in establishments where meat inspection is maintained. Infected animals are not only dangerous to other animals, but may transmit the disease to mankind through milk and flesh.

THE man behind the plow is the man behind the man behind the gun. And more than ever, when he gets behind a bond.

WILL ISSUE MORE MOVIES ON AGRICULTURAL THEMES

Department Plans 1,000 Feet a Week to Aid "More Food" Campaign

Farm Labor, Harvesting Wheat and Other Crops, Red Cross Pig Clubs, Fighting Insects and Diseases Are Among Subjects for Screen

An average film production of about 1,000 feet a week from the motion-picture laboratory of the Department of Agriculture is planned for the next six months for use in next spring's drive for increased food production.

These films will represent practically all sections of the country and include the following subjects:

Solutions of the farm labor problems in the eastern, middle, and far western States; control of hog cholera, staged in Iowa; control of animal parasites, filmed in Texas and Washington; the story of wheat in the great wheat fields of the Pacific northwest; exterminating the prairie dog in Arizona; harvesting California cantaloupes and potatoes; citrus fruit fumigation in southern California; big game on the Wichita game preserve in Oklahoma; the Red Cross pig club; National Forests as the nation's playgrounds; forest-fire fighting; control and preservation of dust explosions caused by smut in wheat; drying fruits and vegetables in the home; logging timber for wooden ships and the construction of wooden ships; and the manufacture and use of cottage cheese—all of which already have been filmed.

More Subjects in Preparation.

Handling of beef cattle, clean milk production, the "cootie" (taken in cooperation with the Army, Surgeon General's office), cordwood production through improvement cuttings in farm woodlands, and prize dairy cattle throughout the United States are now in process of filming. Hog raising in Kansas and Iowa,

Have you a boy in France? A Liberty Bond will help to make him victorious.

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cattle on the national forests on the Pacific coast, and the work of Uncle's Sam's sheep clubs are yet to be filmed.

One of the department's cinematographers has just completed filming the story of wheat in the Pacific Northwest and is now making pictures of prize dairy cattle, hog feeding, beef cattle, and market inspection in the Great Lakes States, while another camera man is returning from the south with films of the Red Cross pig special, of Carroll county, Miss. Some of the film, such as that of the boys' sheep club work, will be designed to show an entire year's process and will require the entire winter and part of the spring for completion.

To Extend Distribution.

While the number of copies of the films already released by the motion picture laboratory has been greatly increased since the nation's entrance into the war, and are being further increased as rapidly as possible in the effort to promote the stimulation of food production, the demand for film from Federal and State extension workers, State councils of national defense, State food administrations, Army camps, educational institutions, and others has increased considerably faster than the supply. In the effort, therefore, to secure the most effective use of the films available, it is found necessary, while a larger supply is being made, to limit the use of those on hand to Federal and State agricultural extension workers, official food administrators, councils of national defense, and Army camps.

Efforts are now being made to provide a larger supply of these films and a consequent wider distribution through the aid of the State colleges of agriculture.

STOCKYARDS REGULATIONS AMENDED.

Amendments to the regulations governing stockyards and dealers in live stock at stockyards, subject to license under the supervision of the United States Department of Agriculture, were signed by the President September 24. The amendments extend the regulations to include all persons not included in the proclamation of June 18, 1918, engaged in the handling, buying, selling, or otherwise dealing in live or dead stock. All slaughterers and renderers who buy stock regularly at stockyards, directly or through exclusive agents, and who have not already obtainer or applied for licenses are now required to secure licenses as buyers. Such concerns which already have secured licenses and been designated as traders may submit their present licenses to the Bureau of Markets for the necessary correction without making another application for license.

Good Care for Traveling Cows Pays; Rough Handling Reduces Milk Flow

Each fall an influx of springer or fresh cows enters dairying sections that seek more milch animals. Every effort should be exercised to expedite the railroad movement of the dairy cows during their time in transit and to provide all possible comfort for the animals en route, advise the dairy experts of the United States Department of Agriculture. Such care and attention will reduce mortality and will increase the production of the individual during her lactation period over the flow which generally obtains from the average cow that is carelessly "railroaded."

Valuable pure-bred cows should be moved as rapidly as possible by express service or by freight under the special system of loading described below, from origin to destination. Although the expense of expressage is 4 or 5 times as great as that of handling the animals by freight, the saving in animal comfort, shorter time in transit, and better conveniences for feeding and watering the animals, make the added expenditure advisable. As far as possible the animals should be shipped one or two months before they are due to freshen, as repeatedly fresh cows have been ruined so far as the subsequent lactation period has been concerned as a result of being shipped shortly after freshening or so as to calve in transit.

Selecting for Long Shipment.

Milch cows of grade breeding usually are shipped by freight. The experienced stockman selects only dry cows and far-springers for long shipments. Heifers which are not due to freshen until three or four weeks after arrival at destination make good "buys," as they are of a size and condition which permits of loading the car to capacity. Furthermore, immature animals are less susceptible to injury in transit and to damage as a result of a marked change of environment. If possible, only animals without horns should be shipped; and in case any horned animals have to be moved, they should be tied securely or penned apart in one end of the car to preclude the possibility of their injuring other animals during the journey.

Similarly, where bulls are shipped in mixed loads, these sires should be confined apart from the other cattle. Other conditions being equal, it is advisable to load about 14 mature cows in a 38 or 40 foot car. A practical arrangement is to tie four cows in each end of the car facing the end walls, and then rough partitions can be installed so that two other rows of three cows each face a center alleyway between the car doors where the attendant can stay and extra feed and water be carried. This arrangement is more comfortable for the cows as they ride, and absorbs the shock and jar better, while it is also simpler for the caretaker to feed the cows and clean out the car en route.

Avoid Hot Weather.

As far as possible, the stock should be shipped during cold weather, advise the authorities of the United States Department of Agriculture, as cows handled during hot weather are liable to shrink appreciably in milk flow during the successive lactation period. Special precaution must be exercised in shipping cows during cold weather, to avoid exposure which will favor the contraction of pneumonia, usually a fatal disease among mature cowstuff. At best it takes an animal about a year to become thoroughly acclimated to a warmer or colder climate than that to which it has been accustomed, and on this account, the movement should take place at a time of year when the temperature of the two points is as nearly equable as possible.

Dairy cows should be handled under normal conditions before and during the trip. They should be fed and watered at regular intervals, and if any of the animals are in milk, they should be milked on schedule. It pays to feed grain and hay during a long shipment where the cows are accustomed to these materials. Simple provision for the feeding of hay can be made by stretching small mesh hog wire along the side walls and ceiling of the car so as to form a wedge-shaped feeding bunk, which can be filled with hay in correspondence with the appetites of the cattle. Grain is a difficult material to feed in transit in a freight car where no special provisions are made to prevent wastage as a result of the tendency of the animals to move about where they are not haltered in place. On long trips, grain can be carried in the car and fed at points

AMERICA will not quit until the war is won. To win we must practice thrift. Invest in bonds. They will help to bring victory and end the war.

where the stock is unloaded. A competent attendant should always accompany the dairy cows. He should ride in the car with the stock, as often he can avert injury to the animals by prompt action in the car in case one of the cows gets down.

Water Needed in Cars.

Several large barrels of water, as well as plenty of feed, should be carried in the car as protection against delay or accident which may detain the train to the extent that without this feed the animals would go hungry or thirsty far beyond the 36-hour limit. Sand or cinders constitute the best bedding materials, and during long trips fresh supplies of these materials should be placed in the car at unloading points whenever they are needed. In view of the high price of dairy cows at the present time, it is imperative that every stockman exert all effort to make for cow comfort in transit and to move the animals with a minimum of loss as a result of carelessness, lack of attention and inexperience in the cow shipping business.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for dictaphone operator, for both men and women, on October 15, 1918. Vacancies in the departmental service, Washington, D. C., at entrance salaries ranging from $1,000 to $1,600 a year will be filled from this examination. Applicants should apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistant in pathological laboratory for both men and women. A vacancy in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., at $1,800 a year. Date of examination, November 5, 1918. Applicants should apply for Form 2118, stating the title or the examination desired, to the Civil Service Commission, Washington, D. C.

Industrial specialist in forest products, for men only, to fill vacancies in the Forest Service for duty at Madison, Wis., at $1,500 to $3,500 a year. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

WHEN farmers need money the Government provides it through the farm loan act. Now the Government needs money and asks farmers for help. It offers Liberty Bonds for sale at a good rate of interest. Invest in as many as you can and help win the war.

Firewood Expected to Bring Better Profit Than Ever; Ways of Cutting It

Farmers who own woodlands and people in cities, towns, and villages who can purchase wood from near-by farms can help in the coming winter—as last winter—to relieve the demand for coal and the strain on railway capacity by burning wood in place of coal.

It is not expected substitution of wood for coal will be complete or universal, as for many purposes coal is much more convenient. But for heating many kinds of buildings wood is the more convenient and cheaper fuel. This is particularly true in the case of churches, halls, summer cottages, and other buildings for which heat is required only occasionally but then is wanted in large volume at short notice.

Methods of Making Cordwood.

The most common method of making cordwood is to cut the trees into 4-foot lengths with the ax and split the larger pieces. The pieces are then piled in a standard cord, which is 8 feet long, 4 feet high, and 4 feet wide. The contents are 128 cubic feet, of which about 70 per cent is wood and 30 per cent air. Wood cut 4 feet long can be sold to brickyards, limekilns, metal-working plants, and other industries, but is too large for household use. This method is used chiefly where the tree growth is comparatively small, as in second growth, because such wood splits easily.

Another method, and one better adapted for old growth hardwoods, which are difficult to split, is to saw the tree into logs of convenient lengths, say from 10 to 15 feet. These are "snaked" out to the edge of the woodland and there sawed and split into lengths proper for the stove or furnace. The sawing is usually done by machine, driven either by gasoline or by electricity. The wood is piled 4 feet high and 8 feet long, such a pile being called a "stove-wood" or "running" cord or "run." When the wood is sawed into 16-inch lengths, as is customary with stove material, three runs are theoretically equivalent to one cord. Actually they contain somewhat more wood, since small pieces can be packed more closely than larger ones.

Wood a Profitable Farm Crop.

Firewood is expected to bring a better profit this year than ever before. It is a much less perishable crop than many which the farmer raises. When properly piled, the better kinds of wood will last from two to three years, although wood steadily deteriorates after the first year.

To have the best heating value, as well as to reduce the cost of hauling, wood should be thoroughly seasoned, which means air-drying it from 6 to 8 months. However, when piled so as to get a good circulation of air, 50 per cent of the moisture may be removed in 3 months. Wood cut in October and November, therefore, may be burned the latter part of the winter.

The prices which cordwood likely will bring this year offer the farmer an opportunity to improve his woodland by weeding out the inferior trees. In the past this has seldom been practicable, for the inferior wood was not marketable. With the prices indicated for the coming winter, thinnings become practicable over a wide range of country in the vicinity of good markets. The woodland owner may secure specific information from his State forester, his county agent, his State agricultural college, or from the United States Forest Service, Washington, D. C.

HOW WOOD WILL SAVE COAL.

In Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, and Missouri it should be entirely practicable in many cases to replace coal with wood for fuel, according to specialists of the United States Department of Agriculture.

In these 17 States is a rural population of about 20,000,000, which, it is estimated, uses annually about 18,000,000 tons of coal. If, by substituting wood, one-quarter of the coal burned by farmers and one-tenth of the coal burned in villages could be saved, the total saving would amount to nearly 3,000,000 tons, or between 65,000 and 70,000 carloads.

CHINESE STUDY COUNTY AGENT WORK.

A delegation from China, in this country to inspect the work being done by county agents and home-demonstration leaders, recently made a tour through Connecticut, visiting various extension-work organizations and collecting information which might be valuable in introducing this work in their home country.

BACTERIA NEEDED IN SOIL TO PROMOTE LEGUMINOUS CROPS

Right Kind of Organisms Can Be Supplied by Transfer or Inoculation

Department Prepared to Supply Pure Culture for Bushel of Seed, or it Can be Obtained from State Stations

For the most successful growth of alfalfa, clover, beans, peas, and other leguminous crops the proper kinds of bacteria should be abundant in the soil. When new legumes are grown for the first time in a locality the soil should be inoculated with the proper bacteria by artificial inoculation. In some regions soils are already supplied with the proper soil organisms; for example, in many southern localities artificial inoculation for cowpeas is unnecessary, and in sections of the Middle West bacteria which thrive on the roots of clover and alfafa are already present.

Artificial inoculation can be accomplished by spreading soil from a well-established field, where the particular legume which is to be grown has been successful, upon the new land to be planted with that legume, and also by the use of pure cultures of the proper bacteria.

Government Supplies Culture

The United States Department of Agriculture is prepared to supply enough of the pure culture to inoculate 1 bushel of seed, and this culture can be obtained in bottles which contain complete directions for use. Application blanks for these cultures may be obtained from the Department at Washington, D. C. Pure culture can also be obtained, either free or at small cost, from State experiment stations.

Too much attention can not be given to the prepartion of the field for leguminous crops. In a well-prepared seed bed the young plants get the best start and the necessary bacteria will thrive. Sour soils hinder and often entirely prevent the development of the beneficial soil organisms. To remedy this condition an application of lime is necessary. Any kind of lime may be used to advantage, but usually finely ground limestone is applied.

Inoculation by Soil Transfer

When a field is known to contain the bacteria suitable for a certain legume crop—for example, alfalfa—shown by the presence of numerous nodules upon the roots of alfalfa plants growing there, the soil is desirable for the inoculation of other fields upon which alfalfa is to be sown for the first time. Such soil, well sifted, can readily be applied to the new field through the fertilizer attachment on a drill. Two hundred pounds or more of sifted field soil will be sufficient for an acre, and is best applied through the hoes. Broadcasting the soil by hand will require a larger quantity and is best done in the early morning, late evening, or on cloudy days, as the sun's rays are injurious to the bacteria in the thin layer of inoculated soil thus exposed to it. The field should be immediately harrowed after broadcasting the soil. Transferring field soil from any considerable distance is expensive and subject to the danger of introducing troublesome weeds, insects, and plant diseases.

Pure bacteria culture can be obtained from the following State colleges and experiment stations:

Georgia Department of Agriculture, Atlanta, Ga.; Idaho Agricultural Experiment Station, Moscow, Idaho; Maryland Agricultural Experiment Station, College Park, Md.; Massachusetts Agricultural Experiment Station, Amherst, Mass.; Michigan College of Agriculture, East Lansing, Mich.; Missouri Agricultural Experiment Station, Columbia, Mo.; New York Agricultural Experiment Station, Ithaca, N. Y. (25 cents charge); North Carolina Department of Agriculture, Raleigh, N. C.; Oregon Agricultural Experiment Station, Corvallis, Oreg.; South Carolina Department of Agriculture, Columbia, S. C.; Virginia Department of Agriculture, Richmond, Va.; Washington Agricultural Experiment Station, Pullman, Wash.; and Wisconsin Agricultural Experiment Station, Madison, Wis.

WHEN the Fourth Liberty Loan goes over the top even the roar of battle in France will be drowned for a while. Have a part in the chorus.

PREPARATION TO KILL HOGS.

In preparing hogs to be slaughtered a fast of 24 to 36 hours, plenty of water, careful handling, and rest before slaughter are all important in securing meat in the best condition for use, either fresh or for curing purposes. Food in the stomach decomposes very rapidly after slaughter, and where the dressing is slow the gases generated often affect the flavor of the meat. Water should be given freely up to the time of slaughter, as it keeps the temperature normal. It is highly important that the animal be not excited in any way sufficiently to raise the temperature of the body. If the animal becomes heated it is better to allow it to rest overnight before killing than to risk spoiling the meat. It is also essential that the hog be carefully handled so as not to bruise its body.

COMMITTEE IS TO CONSIDER WAYS OF STABILIZING DAIRY INDUSTRY

At a conference by Food Administrator Hoover with some 50 leading representative of the dairy interests, including members of the agricultural advisory board, the present situation in dairy products was considered.

It was the unanimous opinion of the meeting that in view of the large Army, Navy, and allied demands there was a temporary shortage of dairy products in the market, especially butter.

Against All Interests.

It was also agreed that the present prices of butter not only bear hardly upon the consumer but are not in the best interests of the producer, as they tend to diminish consumption and to stimulate permanently the increased consumption of margarine, which is about one-half the price. It was agreed that these conditions would sooner or later produce a collapse in butter prices to a point possibly below the cost of production. It was considered essential, for stable condition of the industry, that when such a fall did occur the Government purchases should be used to support the market at a reasonable level.

Committees to Confer.

A committee, consisting of Prof. Clyde L. King, of Pennsylvania; Charles Brand, Urbana, Ohio; I. Ingersoll, Elyria, Ohio; ex-Gov. Warner of Michigan; G. R. Rice, Wisconsin; Frank Kingsley, Iowa; W. F. Schilling, Minnesota; and Robert Scoville, Connecticut, was appointed by the meeting and approved by Mr. Hoover to cooperate with the other advisory committees of the administration, to consider the situation further and to advise with the Food Administration as to what action should be taken to stabilize the situation. The new committee adjourned to meet again at a later date, in the meantime to investigate and consider the many factors involved.

UNCLE SAM has been good to his nephews. The nephews who are lending him money are helping him to be even a better uncle.

HOW TO MAKE GOOD CIDER VINEGAR; METHODS EXPLAINED

Product of the Farm May Meet Both Federal and State Requirements

Slow-Barrel and Rolling Generator Processes Recommended by Department Chemists; Latter Method Quicker; Needs More Care

Good cider vinegar which will meet the requirements of both Federal and State food laws can be made on the farm, say the specialists of the Bureau of Chemistry, United States Department of Agriculture. Cider vinegar is made by subjecting apple cider to a process of alcoholic fermentation by which the sugar in the apple juice is changed to alcohol, producing what is commonly called hard cider, and then subjecting the hard cider to a process of acetic fermentation by which the alcohol is changed to acetic acid. The acetic acid gives to vinegar its characteristic sourness.

Windfall apples which are not green or rotten, small apples, and any sound apples that can not be marketed as fruit may be used profitably for vinegar making. Neither green nor rotten apples will make good cider or vinegar. Dirt, grass, leaves, and any foreign substance, if allowed to get into the press with the apples, will not only injure the flavor but may retard the vinegar-making processes. The apples should be ground fine and then pressed slowly. As much of the juice as possible should be pressed out, but it is not profitable to add water to the pomace for a second pressing. The cider should be allowed to settle for a day or two in loosely stoppered barrels or other covered receptacles.

There are two well-known processes for converting hard cider into vinegar. One is known as the slow-barrel process. This is the simplest and requires the least work and attention but has the disadvantage of requiring a long time for completion. The second method is known as the rolling generator process, which is more elaborate and requires daily attention.

Slow-Barrel Process

The hard cider is carefully drawn from the containers in which the alcoholic fermentation took place in order not to disturb the settlings at the bottom, and passed into barrels for the final or acetic acid fermentation. The barrels should have been prepared by thorough cleaning and soaking with strong vinegar, and then placed on their sides with the bungholes up. They are filled about three-fourths full with the hard cider, and a few quarts of good vinegar are added to each barrel to hasten the change to acetic acid. The fermentation by which the alcohol of the hard cider is turned into the acetic acid of vinegar now takes place. In order that this fermentation shall take place rapidly, it is necessary that the hard cider shall be in contact with the air, and for this reason the bungholes should be left open. It is well, however, to tack a piece of cheesecloth or of well-painted wire screen over the bunghole to keep out insects and dirt. Keep the temperature as near 65 degrees F. to 75 degrees F. as is practicable. Fermentation should be allowed to proceed until a good strong vinegar is produced. Such a vinegar can be recognized by its taste. It will contain not less than 4½ to 5 per cent of acetic acid. The time required for fermentation is usually from 12 to 18 months.

After the proper strength of the acetic acid has been developed the vinegar should be drawn into barrels which have been cleaned thoroughly. Care should be used to prevent the sediment in the bottom of the barrels from being transferred to the new barrels. The barrels should be filled and tightly bunged and kept in a cool cellar. If vinegar is exposed to the air after the proper strength of acetic acid has been developed it loses strength, as the acid will be destroyed. By allowing the vinegar to remain in the tightly bunged barrels for three or four months it develops a fine mellow odor and taste, characteristic of the best cider vinegar.

LET all the next letters to France say, "I have invested in Liberty Bonds of the fourth issue."

Rolling Generator Process

When it is desirable to shorten the time required for converting hard cider into vinegar the rolling generator process may be used. This process requires more work and attention than the slow-barrel process, but by providing for a greater circulation of air through the generator fermentation is hastened.

The rolling generator consists of a barrel placed upon its side with the bung hole at the top and divided by a slatted partition running lengthwise, placed a little higher than the center of the barrel. A few holes are bored obliquely downward, just beneath the slatted partition and in both ends of the barrel. The purpose of these holes is to provide for a circulation of air through the generator. To operate the generator the upper part is packed with beech shavings or corn cobs and the shavings or corn cobs thoroughly soaked with some good, strong vinegar. The interior of the barrel should also be well rinsed with the vinegar.

The barrel is then filled nearly half full with hard cider and a few quarts of good fresh vinegar added. The barrel is mounted on skids or trestles. All the air holes and bungholes are closed with plugs and then rolled so that the top (the bung side) is down, thus causing the cider to run into the shavings or corncobs. The barrel is then moved back to its proper position with the bung side up and all the plugs are removed. It is allowed to stand in this way while the cider drips from the shavings back into the lower part of the barrel. As there is a circulation of air from the end holes through the shavings out of the bunghole the dripping cider comes in contact with the air and the process of fermentation is hastened.

The rolling of the barrel should be repeated two or three times a day, or more frequently, according to the convenience of the operator. As fermentation progresses considerable heat develops, and to obtain the best results the temperature of the upper portion of the generator should be regulated to about 85 degrees F. The temperature can be lowered by inserting some of the plugs to decrease the air current passing in at the end holes. To raise the temperature, increase the supply of air by removing some of the plugs. If the rolling of the barrels is attended to every day and the temperature maintained at from 80 to 85 degrees F., hard cider may be converted into good vinegar by this method in from 60 to 90 days.

The vinegar may be aged in exactly the same manner as when made by the slow-barrel process.

INSECT QUARANTINE IN NEW JERSEY.

Following a hearing conducted by the Federal Horticultural Board in Washington, the Secretary of Agriculture has issued a notice of quarantine, effective June 1, 1919, regulating the shipment of green corn, commonly called sweet or sugar corn, from Delran, Chester, and Cinnaminson townships in Burlington County, N. J.

The quarantine is designed to prevent the spread of a dangerous insect, the so-called Japanese beetle, which has become prevalent in the territory mentioned.

A campaign of eradication authorized by Congress is now in progress, and the proposed quarantine is deemed necessary to support the measures that are being taken for the suppression of this pest.

More Agricultural Advisors Named To Tell Draft Boards of Farming Needs

Agricultural draft advisers named by the Department of Agriculture and not noted in the last issue of the Weekly News Letter follow:

California.

A. W. Foster, San Rafael, Cal.—Agricultural adviser to northern district board, division No. 1, headquarters room 400, City Hall, San Francisco, Cal.

Sheridan Baker, Santa Rosa, Cal.—Agricultural adviser to northern district board, division No. 2, headquarters 704 Fourth Street, San Rafael, Cal.

F. D. McKevitt, Sacramento, Cal.—Agricultural adviser to northern district board, division No. 3, headquarters State Capitol building, Sacramento, Cal.

P. F. Cogswell, El Monte, Cal.—Agricultural adviser to southern district board, division No. 1, headquarters room F, Chamber of Commerce building, 130 South Broadway, Los Angeles, Cal.

W. F. Chandler, Fresno, Cal.—Agricultural adviser to southern district board, division No. 2, headquarters Court House, Bakersfield, Cal.

Illinois.

Fred L. Hatch, Spring Grove, Ill.—Agricultural adviser to northern district board, division No. 1, with headquarters at 112 West Adams Street, Chicago, Ill.

August Geweke, Des Plaines, Ill.—Agricultural adviser to northern district board, division No. 2, with headquarters in room 1122, 112 West Adams Street, Chicago, Ill.

J. P. Mason, Elgin, Ill.—Agricultural adviser to northern district board, division No. 3, with headquarters at room 722, 112 West Adams Street, Chicago, Ill.

Charles Foss, Freeport, Ill.—Agricultural adviser to northern district board, division No. 4, with headquarters at room 8, Fry's Block, Freeport, Ill.

Henry C. Gordon, Freeport, Ill.—Agricultural adviser to southern district board, division No. 1, with headquarters at 1105 Lehmann Building, Peoria, Ill.

Homer J. Tice, Greenview, Ill.—Agricultural adviser to southern district board, division No. 2, with headquarters at the State Arsenal, Springfield, Ill.

J. P. Doyle, Mount Vernon, Ill.—Agricultural adviser to eastern district board, division No. 1, with headquarters at Mount Vernon, Ill.

F. I. Mann, Gilman, Ill.—Agricultural adviser to eastern district board, division No. 2, with headquarters at Champaign, Ill.

Montana.

W. J. Merritt, Townsend, Mont.—Agricultural adviser to district board, division No. 1, with headquarters at Helena, Mont.

Frank W. Mitchell, Great Falls, Mont.—Agricultural adviser to district board, division No. 2, with headquarters at Great Falls, Mont.

Nebraska.

O. G. Smith, Kearney, Nebr.—Agricultural advisor to district board, division No. 1, with headquarters at the courthouse, Omaha, Nebr.

E. P. Brown, Davey, Nebr.—Agricultural advisor to district board, division No. 2, with headquarters at the Federal Building, Lincoln, Nebr.

New Mexico.

George H. Webster, Cimarron, N. Mex.—Agricultural advisor to district board with headquarters at Santa Fe, N. Mex.

New Hampshire.

Roy D. Hunter, West Claremont, N. H.—Agricultural adviser to district board with headquarters at Concord, N. H.

Oklahoma.

J. L. Shinnberger, McAlester, Okla.—Agricultural adviser to district board (eastern), division No. 1, headquarters Muskogee, Okla.

Cyrus Avery, Tulsa, Okla.—Agricultural adviser to district board (eastern), division No. 2, headquarters, Tulsa, Okla.

George Bishop, Cordell, Okla.—Agricultural adviser to district board (western), headquarters Daily Oklahoma Building, Oklahoma City, Okla.

Oregon.

William Schulmerck, Hillsboro, Oreg.—Agricultural adviser to district board, division No. 1, with headquarters at room 349, courthouse, Portland, Oreg.

Richard Scott, Corvallis, Oreg.—Agricultural adviser to district board, division No. 2, with headquarters at 659 Willamette Street, Eugene, Oreg.

Jay H. Dobbin, Enterprise, Oreg.—Agricultural adviser to district board, division No. 3, with headquarters at room 10, Palmer-Roesch building, La Grande, Oreg.

The agricultural advisers are not to be members of the district boards but are to furnish to the boards facts relative to farm-labor requirements, not only of their own districts but of the entire country. Such information will be supplied to the advisors by the Department of Agriculture. The advisors also may concern themselves with individual cases before the district board. County agents of the Department of Agriculture have been supplied with questionnaires to be sent out for the purpose of securing facts about the farm-labor needs in the counties.

CORN MOVEMENT IN MASSACHUSETTS AREA PROHIBITED BY QUARANTINE

To prevent further infestation by the European corn borer, a dangerous insect that has gained a foothold in 135 square miles in Massachusetts, the Secretary of Agriculture has placed a quarantine on the interstate movement from the area infected of corn fodder or cornstalks, whether used for packing or otherwise, green sweet corn, roasting ears, corn on the cob, and corncobs.

The area quarantined comprises the townships of Beverly, Danvers, North Reading, Reading, Lynnfield, Peabody, Salem, Marblehead, Swampscott, Lynn, Saugus, Wakefield, Woburn, Stoneham, Melrose, Winchester, Medford, Malden, Everett, Revere, Winthrop, Nahant, Lexington, Arlington, Somerville, Cambridge, Belmont, Waltham, Watertown, Newton, Brookline, and Boston, in the counties of Essex, Middlesex, Suffolk, and Norfolk, in the State of Massachusetts. The quarantine became effective October 1.

The quarantine follows a hearing held in Washington by the Federal Horticultural Board. The insect was discovered late in the summer of 1917 to have become established near Boston over a territory found to be approximately 100 square miles, but which since has been determined to approximate 135 square miles. It is thought to have been introduced from Europe, Asia, or Japan, where it occurs abundantly. It is especially injurious to corn in foreign countries, and grave danger is seen in its presence in this country.

The insect bores into the base of the flower stalk, often causing the pollen to be spilled upon the ground; enters the stalks and bores into the ears of the corn, rendering them unfit for food and also increasing the likelihood of it being distributed over wide areas through the shipment of the ears. The insect also hibernates in the dead stems of many common weeds and several garden vegetables.

"INVEST in Bonds" is neither a threat nor a command. It is an invitation to a sense of personal and direct interest in victory.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

To Classify Mahoganies.

More than 50 different woods are known as mahogany. This fact causes confusion, and the Forest Service has been asked to identify and classify the various mahoganies, so that the trade will have a definite guide in making specifications.

Iowa Farm Bureaus 100 Per Cent.

With an organization in every county planning a food-production campaign in harmony with the national agricultural program, Iowa is now a 100 per cent State in farm bureaus. On July 1, 1917, there were 29 farm bureaus in Iowa. The remaining 68 counties have been organized as a result of the provision for emergency agricultural extension work.

Aiding Drought-Stricken Stockmen.

To assist cattle raisers in the Southwest, where drought has caused a great scarcity of feed, from suffering financial loss and to prevent hundreds of thousands of beef-breeding cattle from being slaughtered and removed from the country's sources of meat, field agents of the United States Department of Agriculture in cooperation with local and State authorities, especially the Texas cattle-raisers' associations, are transferring cattle to the Southeast and Corn Belt States, where feed is plentiful. Up to the middle of September 79 carloads of cattle had been shipped to the Southeast. Arrangements have been made so that cattle may be shipped from the drought-stricken area at a reduction of 25 per cent from the regular freight rate. For the information and convenience of those wishing to buy cattle the department representatives are issuing a weekly market report showing the receipts, age, weight, condition, and price, also giving a list of breeders who have pure-bred cattle for sale. This movement of cattle is supplying the increasing demand for stock in the Southeastern States and is expected to be an important factor in building up the beef-cattle industry in that section. The field agents are making a special effort to have all available roughages properly safeguarded to be utilized for feeding purposes during the coming year.

Injury from Smut-Control Treatment.

To determine the injury resulting to cereal seeds from standard methods of disinfection for smut control, experiments have recently been carried out by pathologists of the United States Department of Agriculture in 16 of the wheat-growing States. Seventy-eight different lots of seed grain were treated with copper sulphate, formaldehyde, and hot water, and 8,500 germination tests have been made to determine the resultant injury. It has been found that of all the small grains, barley is the least susceptible to injury by any of the standard treatments. Oats may be injured in many cases, though not always, by copper sulphate, but seldom by formaldehyde or hot water. Wheat and rye are considerably injured by the hot-water treatment and the longer method described in department bulletins is recommended. Copper sulphate is the only fungicide showing a marked tendency to injure seed grain, though liming prevents this injury to a large extent. Holding seed after treatment by any of the methods recommended and practiced does not have any appreciable bad effect on the germination, but it is advisable, the specialists say, to sow immediately after treatment with formaldehyde and copper sulphate.

Stabilizes Seed Situation.

Suffolk County, Long Island, played the part of a friend in need to 28 other counties in New York State this season by distributing through the County Seed Corn Association approximately 13,000 bushels of high-testing Luce's Favorite seed corn among some 5,000 farmers. More than 70,000 bushels altogether, including seed corn of other varieties, were exported from this county at a net profit of over $1 a bushel to the growers. An efficient county farm bureau organization and a wide-awake county agent cooperated in locating, testing, and marketing this corn. The seed was sold directly to the purchasers, who were thus saved over $150,000. The corn was distributed through the Farm Bureau Association at an average price of $4.50 a bushel at a period when many commercial seedsmen were demanding $9 a bushel for similar seed. Ultimately the reasonable prices at which the producers sold seed corn tended to lower the market price. The farm bureau, through its efficient organization, supplied the other farmers of the State with desirable seed at low prices. Without this organization a seed famine would have resulted or seed not adapted to local climatic conditions would have had to be purchased from another State, with a consequent loss in productivity.

States Wage War on Barberry.

The Nebraska State Council of Defense has issued an order to the effect that all common barberry, which harbors rust and causes its spread to wheat and other cereals, must be removed from the State. The order states that "summary action" will follow close on the heels of all cases of refusal. Last spring the council made an appeal to all citizens to remove the offending bushes, but a few individuals did not put much faith in the relationship of the barberry rust and that of wheat. Such persons, as a result of the order, will no doubt realize that the people of Nebraska are in earnest about this barberry business and prefer to grow wheat. If this type of ornamental shrub is desired, it is advised by the United States Department of Agriculture that Japanese barberry, which does not harbor wheat rust, be planted. Other wheat-growing States are "on the job" in the campaign to eradicate barberry. The States of Montana and Wyoming have both decided that their agricultural future will be brighter if the common barberry is excluded and have issued quarantines against it. In Colorado the amended pest law gives all the legal authority necessary to compel owners to eradicate the bushes. In other States not having legislative power to support the campaign, public sentiment is growing to favor the eradication of the common barberry.

Gives Good Results on Potatoes.

A model Bordeaux mixing and filling station, with the raised platforms and barrels made in miniature form, was one of the most attractive features of the interesting fair exhibit displayed by the local county agent at Waterville. The model showed clearly how Bordeaux mixture should be made, and other parts of the exhibit testified to the success of the use of this mixture in spraying potatoes for blight. Good results are reported from the potato-spraying demonstrations which have been held in various

parts of Maine, and many prominent growers who have carefully followed directions in mixing and applying their Bordeaux are now very enthusiastic over the results they have obtained. County agents in the Maine potato-growing districts are assisting in selecting home-grown seed potatoes. All diseased and weak hills have been pulled from the seed plot during the growing season and all varietal mixtures eliminated, and the growers are now going through, digging by hand, and saving seed from only those hills that show a good yield and a good tuber true to type.

Better Cattle for Georgia.

The better-cattle movement is rapidly gaining in favor in Georgia. Local and Federal agents who are working in the State are continually being called upon to supply good bulls, which are in demand by farmers to improve the native cattle. Boys' calf club members are planning to use pure-bred calves for their work in some counties next year. Beef cattle projects have been outlined and specialists and county agents are busy securing demonstrators to help carry on the work during the coming year. Demonstrations in the breeding and feeding of beef cattle and pasture improvement are receiving special attention.

Corn Diseases Being Studied.

Investigations of the root, stalk, and ear rots of corn, started last spring by the United States Department of Agriculture in cooperation with the Purdue University Agricultural Experiment Station, in Indiana, have resulted thus far in a survey which shows that the root rots are present in all of the corn-growing States and that the careful selection of disease-free seed is an important means of combating this and the other rots. The use of infected seed is responsible for the introduction of the diseases. Their chief effects noted readily are blighted plants, spindling stalks, and stalks with the ears either partially formed or completely retarded and resulting in barrenness. Sweet corn, it has been found, seems to be more subject to these rots than field corn, and especial care should be given in a selection and care of seed.

Sheep Clubs in the South.

Four sheep specialists of the United States Department of Agriculture are cooperating with colleges in the Southern States in organizing sheep clubs. This year 1,263 boys were enrolled in sheep clubs in 7 Southern States, and in other parts of the South the sheep industry has made substantial progress. According to the August report of the Bureau of Crop Estimates, the percentage of sheep in the 15 Southern States on August 1, 1918, as compared with the same date in 1917, was 118.4, while that of the entire United States was 116.5.

Stock Industry Flourishes in Florida.

The stock industry is flourishing in Florida and thousands of good breeding cattle are being shipped into the State. One large farm recently bought 1,000 Hereford cows from Texas for breeding purposes. Twenty-five or more Federal and State agents are kept busy bringing in cattle from the drought area of the Southwest. The specialists have made a thorough canvass of the State by means of letters sent out for the purpose, of the farmers who desire to purchase cattle. The cattle brought into the State last year from the Southwest have given entire satisfaction and are largely responsible for the present impetus in the industry.

No Obstacle to Pink Bollworm Work.

Investigation in Texas by the Federal Horticultural Board has shown no instance of infestation of any plant other than cotton by the pink bollworm. Possibility of such infestation, which would have added to the difficulty of the quarantine and clean-up program in Texas, had been reported by authorities in Egypt. The investigation involved the examination of thousands of alternative food plants, notably okra and hollyhock.

New York Farmers in Wool Pool.

Through information furnished by the farm bureaus, 23 counties in New York State marketed 456,766 pounds of wool cooperatively through county wool associations at full Government prices. Farmers say they have saved from 5 to 7 cents a pound by pooling their wool, and it is thought possible that next year the county associations will federate into a State organization, with all the wool being sold through a single committee. Official Government graders visited the counties and fixed in the minds of the farmers a standard toward which to work, as well as demonstrating the value of keeping high-grade stock.

Mexican Plants Prohibited.

The Federal Horticultural Board has published a notice by the Secretary of Agriculture warning travelers from Mexico to the United States of heavy penalties against unauthorized movement into this country for any purpose of oranges and a number of other fruits and vegetables. The purpose of this regulation is to prevent the introduction into the United States of the Mexican fruit fly and the avocado weevil.

Farm Bureaus Take Seed-Corn Census.

Between September 15 and 28 farm bureau cooperators in Iowa were working to get a seed-corn census from every farm in the State. This was done after Gov. Harding, as a war measure, set aside the two weeks as a period in which every corn grower was urged to gather sufficient seed corn to plant two crops. This would not only insure seed for 1919 but for the following in case of a failure. Each farmer was to be listed as to whether or not he had gathered his seed corn, and it was hoped that the corn growers would respond without an exception. The Iowa plan was supported by the Federal and State Governments and was indorsed by all organizations interested in food production.

The Department's Part in Dairy Show.

An elaborate series of demonstrations which will emphasize the importance of increasing dairy production, preventing waste in the industry, the economic advantages of a better use of dairy products, and the use for human food of a number of dairy by-products formerly wasted or fed to farm animals, will be given by the Department of Agriculture at the National Dairy Show to be held at Columbus, Ohio, October 10 to 19. Consumers of dairy products who visit the show will be shown how much feed and care a dairy cow requires in a year, and demonstrations will be given to teach the food value of various dairy products and also ways to use them in cookery. Farmers will learn how bull associations and cow-testing associations may be used to increase production per cow, how to eliminate unprofitable animals and reduce costs, thereby enabling an increased production of indispensable foods most economically. Manufacturers will have explained to them numerous ways in which milk may be used to increase the Nation's food supply and to supply materials for certain other industries.

DIVINE right of kings to rule their fellowmen? Show your contempt for that doctrine by lending your money to Uncle Sam.

Be a modern alchemist; turn your gold into steel. Get a bond.

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. VI OCTOBER 23, 1918 No. 12

UNCEASING WATCH DEMANDED FOR FOOT-AND-MOUTH DISEASE

Department Official Reminds Americans of Ever-Present Danger of Outbreak

Occurrence of Malady Reported by Cable from England—Early Discovery and Prompt Action Necessary for Control

Public officials, veterinarians, and stock owners should be on guard to report immediately any cases of foot-and-mouth disease that may appear in this country, according to a statement by Dr. J. R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture. Dr. Mohler said:

"Recent cable news announces an outbreak of foot-and-mouth disease in England, which brings to mind the serious outbreaks of that disease which have been experienced in the United States.

Appears at Irregular Intervals.

"Foot-and-mouth disease has appeared in England from time to time, as it has done in the United States. In both countries the past outbreaks have been promptly controlled and eradicated, and no cases have occurred in the United States since 1916. Nevertheless, the disease makes its appearance at irregular intervals. In this country we may expect its return at any time, although every precaution is being taken by the Federal authorities to prevent the introduction of the disease, especially from the present outbreak in England. So long as communication is maintained with other countries the danger of the reintroduction of the disease must be acknowledged.

"It is of the greatest importance that a sharp watch be maintained by all officials, by practicing veterinarians, and by stock owners in order that the very first cases may be discovered and the spread of the disease prevented. It would be a great misfortune to the United States if foot-and-mouth disease should occur under present conditions or become firmly established in the country, as has been the case in many of the stock-raising nations of Continental Europe. Early discovery of the disease, followed by prompt elimination of infected centers, is the only way to prevent the United States from becoming permanently infected."

Chemists Find Needed Elements In 30 Wheat Flour Substitutes

A study of the chemical composition of more than 30 breads made with part substitutes for wheat, just reported by the specialists of the Bureau of Chemistry, United States Department of Agriculture, shows that many of them are very similar to wheat bread in composition and that some of them have a greater protein or tissue building value than wheat bread.

The substitutes studied included flours made from chestnuts, cassava, ripe and unripe bananas, peeled and unpeeled dasheens, dried, flaked, and boiled potatoes, potato starch, sweet potatoes, raw, parched, and steamed yellow corn meal, raw, parched, and steamed white corn meal, polished and brown rice, buckwheat, rye, oatmeal, clear and patent feterita, millet, kafir, milo, kaoliang, barley, white beans, peas, chickpeas, peanut meal, soy beans, and bran and wheat germ.

All the breads analyzed in the investigation were made from mixtures of 25 per cent wheat substitutes and 75 per cent of the prewar standard patent wheat flour.

The experiments are described in Bulletin 701, "The Chemical Analysis of Wheat Flour Substitutes and of the Breads Made Therefrom," recently issued by the department. Few studies of the composition of American breads made with wheat flour substitutes have been published, and the data regarding their composition just reported are thought to be of timely value to millers and bakers.

THE county agent is the Nation's local representative or agent in all war work activities relating to agriculture.

FARMERS ASKED TO REPORT EELWORMS IN THEIR WHEAT

Department Advises Precautions to Prevent Spread of Dangerous Disease

Salt-Water Treatment Recommended for Removing Galls from Sound Grain to Be Used as Seed—Signs of Infection

To prevent the spread of a serious wheat disease that recently has done much damage in certain parts of the United States, especially Virginia, the United States Department of Agriculture advises farmers in Virginia, West Virginia, Maryland, and California to maintain a careful watch for eelworm galls in their grain, and to make all possible efforts to stamp out the disease.

The disease may be recognized in the thrashed grain by the presence of hard, dark-colored galls about one-half the size of a wheat kernel. These galls contain the very small eelworms. It is best to get seed from uninfested fields. Where this can not be done, a salt-watr method is recommended for removing the eel-worm galls from the sound grain to be sown.

Where Disease Has Appeared.

The eelworm has done the most damage in Virginia, causing as much as a 40 per cent loss in some fields this year. It occurs in minor degree in West Virginia, Maryland, and California, these being the only States where its positive appearance is known, but it is feared that the trouble occurs in other States, and possibly may have been overlooked or mistaken for bunt, cockle seed, or bin-burnt wheat.

Samples of wheat or grain thought to be affected with this disease should be sent for positive identification to the State agricultural experiment station or to the Office of Cereal Investigations, United States Department of Agriculture, Washington, D. C.

The disease is not native to the United States and it can be controlled by careful precautions.

(*Continued on page 7.*)

Highways Council May Give Approval to Public Road Building Proposals

A circular recently issued by the War Industries Board calls attention to the fact that no permits or licenses will be required by the board for public highway improvements and State pavements when expressly approved in writing by the United States Highways Council. The Highways Council calls this statement to the attention of State, county, and city officials, some of whom have shown confusion as to what Federal approval is necessary for this class of construction work.

More than 6,000 applications for approval of highway projects have been received by the council.

The United States Employment Service is now represented in the membership of the council. The other Federal agencies represented are the War Department, Railroad Administration, Fuel Administration, War Industries Board, and Bureau of Public Roads of the United States Department of Agriculture.

Programs of work in construction of streets and highways for 1919 being made up under the supervision of State highway departments are to be submitted to the council on or before December 10, 1918.

In response to queries from local officials the Highways Council recently has made the following rulings:

The council does not exercise jurisdiction over sidewalk construction.

Construction work, whether it costs more or less than $2,500, should be submitted if it involves any of the materials under the control of the War Industries Board or the Fuel Administration. When materials are already on hand or are locally available, application for Federal approval need not be made.

FOOD INSPECTORS TOLD TO WATCH FOR FRAUDULENT OLIVE OIL

Food inspectors have been instructed by the officials in charge of the enforcement of the Federal food and drugs act to inspect interstate shipments of olive oil, in order to prevent the sale in interstate commerce of cheaper vegetable oils under the name of olive oil.

Very little olive oil is now being imported, say the officials, and the domestic olive oil is not sufficient to supply the demand. The abnormally high price of genuine olive oil has tempted unscrupulous dealers to mix cheaper vegetable oils with a little genuine olive oil and to sell the mixture labeled as olive oil. Cottonseed oil, corn oil, and soy-bean oil are the principal substitutes used.

Several seizures have been made and a number of prosecutions are now pending in the Federal courts as the result of finding in interstate commerce products labeled "olive oil," which upon analysis were found to consist largely of cottonseed oil. Cottonseed, corn, and soy-bean oils are palatable oils which are not injurious to health and there is no objection to their sale as food when properly labeled, say the officials. Their sale as olive oil, however, is a fraud, and their shipment in interstate or foreign commerce labeled as olive oil is a violation of the Federal food and drugs act. The sale of cottonseed, corn, or soy-bean oils under the name of olive oil is also a violation of the laws of most States. State and city food inspectors are cooperating with the Federal food inspectors in stopping this form of adulteration.

Labels Required by Law Tell Housewife What She Is Buying

The housewife can see at a glance how much food she is to get for her money when it is in package form and labeled in accordance with the provisions of the Federal food and drugs act, say the officials of the Bureau of Chemistry, charged with the enforcement of that law. The Federal food and drugs act provides that all food in package form, shipped into interstate or foreign commerce, shall bear on the labels a plain and conspicuous statement of the quantity of the contents of the package in terms of weight, measure, or numerical count.

Federal food inspectors are always on the watch for interstate shipment of food in package form to see that the labels tell the truth with respect to the quantity of food in the packages. Samples of the great variety of foods now put up and sold into interstate commerce in package form are taken by the inspectors. Several samples are taken from each shipment in order that their average weight may be determined. The food in sample packages is carefully weighed or measured. If the packages are found to be short in weight or measure, the party responsible for the shipment may be prosecuted under the criminal section of the law.

The Federal food and drugs act does not apply to foods which are sold and consumed within the State where produced or manufactured. It applies to foods that are shipped from one State to another, or to or from a foreign country, or manufactured or sold within the District of Columbia or a Territory. Many States have net weight or measure laws, however, which protect the housewife from short weight or measure in package foods produced and sold within the State. The Federal food officials and the State food officials cooperate in the work of enforcing the food laws in order that abuses which can not be reached under one law may be corrected under the other.

The variety and quantity of foods put up and sold in package form has increased rapidly in recent years. Nearly every kind of food may now be bought in can, box, bottle, basket, case, carton, sack, or other form of package. Canned fruits, vegetables, and meats have long been on the market and can be obtained at all grocery stores. Other foods regularly sold in large quantity in package form are coffees, teas, spices, flavoring extracts, baking powders, sirups, vinegars, jams, jellies, preserves, flour, olive oil, candy, catsup, bakery products, butter, cheese, breakfast foods, fresh fruits and vegetables, and beverages.

IMPROVING FARM KITCHENS

County tours are being utilized to raise the efficiency and comfort of kitchens of the country. In Vanderburg County, Ind., a string of motor cars one-half mile long, carrying 150 people, visited six homes on one tour. A kitchen planned scientifically was used as a model by the home demonstration agent to compare with others less convenient. Suggestions were made as to how the inefficient kind might be readjusted or changed, with the expenditure of a little money, to become a comfortable workroom for the housewife.

DECLINE IN STOCK ON FARMS

On about 5,000 representative farms scattered throughout the United States, reporting to the Bureau of Crop Estimates, the decline in the number of cattle was 0.8 per cent from last July 1 to August 1, 2.9 per cent in hogs, and 3.3 per cent in sheep.

Seed Grain Loans Planned in Drought Regions to Help Next Spring Planting

Seed grain loans will be made to farmers in drought-stricken areas of Montana, North Dakota, and Washington for spring planting of wheat within the limits of remaining available special funds. Five dollars an acre will be allowed, with a maximum of 100 acres.

The foregoing announcement has been made on the authority of a message from the Secretary of Agriculture by the Federal Seed Grain Loan Office at Great Falls, Mont.

In the distribution of the fund set aside by President Wilson to aid farmers in drought-stricken areas the following allotments were made: Montana, $1,550,000; North Dakota, $600,000; Washington, $200,000.

Applications approved for fall seeding of wheat and rye, together with those anticipated before the dates of closing, which is October 5 for fall wheat and October 15 for rye, are estimated to require $300,000 for Montana and $75,000 for North Dakota. This leaves a large share of the special fund to assist the farmers in spring planting.

One hundred acres will be the maximum on which a loan will be made to any one farmer. If a farmer has secured a loan on 100 acres of fall wheat or fall rye, he will not be entitled to a loan on spring grain. If a farmer has secured a loan on less than 100 acres, he will be entitled to a loan on an additional acreage which will bring the total to 100 acres; for instance, if he has received a loan on 60 acres of fall wheat, he can apply for 40 acres of spring wheat which, at $5 per acre, would give him $200.

Must be Without Resources.

The spring loans will be made to land owners and homesteaders who have suffered a loss of crops for two years as a result of drought and winter killing, and who, by reason of such failures, have exhausted their resources and are without commercial basis of credit. Loans will not be made to renters or to others who can not give an unconditional lien on the crop.

In order that farmers may know just what aid they will receive and so that plans can be made for additional assistance from the banks and other institutions, applications for spring aid will be received after November 1 at the Federal Seed Grain Loan Office in Great Falls. It will be necessary to use different application blanks from those used this fall. These forms will be printed and distributed to county agents and to banks. Farmers should use these new blanks when making applications.

County agents, farm bureau organizations, banks, and farm loan associations who will assist in the distribution of the seed grain loans are urged to exercise great eare in the approval of applications of farmers so that the needy and worthy farmers will secure the aid. For the reason that the funds are limited, assistance will be given only to those who can not secure help from any other source.

Plan Proves Satisfactory.

A study of conditions in Montana and North Dakota shows that the plan of the Government is a satisfactory one. Farmers have been able to secure seed readily and without much delay or inconvenience. The county commissioners, seedsmen, banks, elevators, and farmers who had a surplus of seed have been willing to accept the certificates of approval and allow the farmers to proceed with the planting of their crops. The same plan should work in a satisfactory way next spring.

It will be desirable to hold good, home-grown wheat in each community for the use of the farmers in the spring. In some cases it will be necessary to purchase seed wheat in other counties and import it. Counties are urged to make arrangements at once for this seed and to store it for spring use. This will save the farmers large sums of money. This seed wheat should be purchased by the county commissioners, elevators, seedsmen, or other parties in a position to handle this grain.

NEW ENGLAND GARDENERS MAY STOP SPREAD OF DANGEROUS NEW INSECT

The United States Department of Agriculture has issued an appeal to gardeners in the New England States to clean up their plots and burn all the dead vegetation as soon as possible after killing frost this fall. Destruction by fire of infested stock, stubble, garden plants, and weeds after killing frost is the only known method of combating the European corn borer, a dangerous insect pest of corn new to this country, and which has been found living in the corn fields of eastern Massachusetts.

If strenuous methods are not made to check this insect, according to the Bureau of Entomology of the department, it will spread to the great field corn producing regions of the country, do incalculable injury to the corn crop, and materially reduce the prosperity as well as the food stocks of the Nation.

The pest is not definitely known to occur outside of Massachusetts, but it is possible that it may be present in other New England States. The insect came from Europe and is especially injurious to corn in Austria-Hungary, where it has been known to destroy at least one-fourth of the entire crop in a single year. During the cold months it lives within the dead and dried stalks and roots of corn, the larger grasses, weeds, and garden plants. Therefore, the ease of destroying it at this time by burning garden trash of the kind mentioned.

Discovery of the insect should be reported immediately to the State agricultural college or to the Bureau of Entomology, United States Department of Agriculture, Washington, D. C.

Milk Condemned as Food May Be Made Fit For Animals; Save Waste

The custom of officials in many cities of dumping into the sewers milk that does not come up to local requirements is an inexcusable waste, especially in war time, according to dairy specialists of the United States Department of Agriculture. A simple and inexpensive process of denaturing will leave it still a valuable food for animals.

The addition of a 3 per cent solution made from rennet, strength 1 to 30,000, in the proportion of 2½ ounces to 10 gallons of milk, at a temperature of 53° F. or higher, will curdle the product within an hour. This will make the product no longer salable as milk, but still allow it to be fed to calves, pigs, or chickens.

The specialists believe this method deserves attention now, as one way of furthering America's campaign to stop waste and make use of every available quantity of food and feed.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces open competitive examinations for the position of live-stock market supervisor, $2,400 to $3,000 a year, and live-stock market assistant supervisor, $1,800 to $2,400 a year, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field, will be filled from these examinations. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

PRODUCE MORE AND CUT COST ARE WAR-TIME POULTRY AIMS

Breeding of High-Quality Stock Only Solution to Keepers' Problem

Understanding of Egg, Meat, and Dual Purpose Types Necessary for Best Use—How to Distinguish Them

In war times economy and efficiency are the keynotes of poultry production. The poultry keeper must save feed and, at the same time, increase poultry production. It is not alone the high cost of feed since America entered the war that has led to more careful attention to the routine work of keeping poultry and to greater production and skill in feeding. The saving of money has been an incentive, but above and beyond that, every poultry keeper realizes that getting better production from less feed is doing double duty in conservation and production.

Importance of Breeding Stock.

The first result of war-time conditions was to emphasize afresh and more effectively than ever the benefits of graded selection of breeding stock and severe culling of the young stock while growing. When this is practiced, together with good poultry management, the feed bill is reduced, but the production of eggs is maintained and even increased in some cases. The policy of using only breeders of the very best type reduces to the lowest practical point the waste of feeding inferior young stock. Professional breeders were compelled to do this because no other plan of economizing comparable with it in efficiency was open to them. Good feed in abundance had to be used, whatever the cost, or their birds would not have attained good development and commanded profitable prices. The only solution to their problem was the exclusive production of poultry of high quality, for feed and care for such birds costs no more than for those of greatly inferior quality.

If the producers of eggs and poultry for the table are to do their utmost to increase production of meat and eggs, the easiest, shortest, and surest way is through general use of the most productive types; that is, by the use on the part of every poultry keeper of the most productive types of his stock. It is not meant that there should be a wholesale replacement of ordinary stock by stock or strains celebrated for extreme high production. In some cases this may be done to advantage, but with the majority of poultry keepers immediate gain in production must be made by good use of such stock as they have.

Understanding of Type Essential.

The first step toward the increase of poultry products—whether meat or eggs—through the use of the types best suited to production is to get a correct understanding of type. Three distinct types are recognized: the egg type, the meat type, and the dual-type or general-purpose type, which is commonly considered as an intermediate of the other two, though in reality it is the primary type of which the others are modifications.

Small size and great activity are commonly supposed to be the characteristics of egg type, large size and an indolent temperament are supposed to be characteristics of the meat type, and medium size without either marked energy or great indolence are supposed to be the characteristics of the mediocre dual purpose type. While this, in a general way, is true, there are exceptions as can be noted in the accompanying tables. The tables show that egg production and meat production are not entirely a simple matter of size, weight, and temperament. Table No. 1 is a list of well-known standard breeds grouped according to their general type. Table No. 2 is a list of the same breeds arranged in the order of their weight, beginning with the smallest.

TABLE I.—*List of well-known breeds grouped according to general type, with standard weights.*

Breed.	Weights in pounds.			
	Cock.	Cockerel.	Hen.	Pullet.
Egg type.				
Leghorn	5½	4½	4	3½
Ancona	5½	4½	4½	3½
Andalusian	6	5	5	4
Minorca (other than S. C. Black)	8	6½	6½	5½
Minorca, S. C. Black	9	7½	7½	6½
Dual-purpose type.				
Dominique	7	6	5	4
Rhode Island Red	8½	7½	6½	5
Wyandotte	8½	7½	6½	5½
Sussex	9	7½	7	6
Buckeye	9	8	7	6
Plymouth Rock	9½	8	7½	6
Orpington	10	8½	8	7
Meat type.				
Dorking, White	7½	6½	6	5
Dorking, S. G	8	7	6½	5½
Cornish	10	8	7½	6
Langshan	9½	8	7½	6½
Cochin	11	9	8½	7
Brahma, Light	12	10	9½	8

There is a wide range of individual differences among the standard breeds, some strains of a particular breed being better suited for egg production than meat, and vice versa.

Characteristics of Good Layers.

Good physical development, vitality, constitutional vigor, a good digestive system, docility, and ruggedness and stability of function in the reproductive organs are the distinguishing characters and traits of dependable good layers.

TABLE II.—*List of breeds in Table I arranged according to standard weight. Egg-type breeds in ordinary print, dual-purpose breeds in italics, meat-type breeds in heavy type.*

Breed.	Weights in pounds.			
	Cock.	Cockerel.	Hen.	Pullet.
Leghorn	5½	4½	44	3½
Ancona	5½	4½	4½	3½
Andalusian	6	5	5	4
Dominique	7	6	5	4
Dorking, S. C	8	7	6½	5½
Minorca[1]	8	6½	6½	5½
R. I. Red	8½	7½	6½	5
Wyandotte	8½	7½	6½	5½
Buckeye	9	8	6½	5½
Sussex	9	7½	7	6
Minorca, S. C. Bl	9	7½	7½	6½
Plymouth Rock	9½	8	7½	6
Langshan	9½	8	7½	6½
Cornish D and W	10	8	7½	6
Orpington	10	8½	8	7
Cochin	11	9	8½	7
Brahma, Lt	12	10	9½	8

[1] Other than S. C. Black.

The existence of all these, however, is not enough to insure good laying. There must, of course, be reasonably good management, even if the keeper has not special skill. But if with these qualities which make for continual laying, there exists a tendency to put on fat whenever laying is interrupted, only unremitting skillful management to keep a hen in good laying condition will make her a first-class egg producer.

The egg type or laying type of hen in any breed is the hen that with the qualities that make for good egg production has no quality which is an obstacle to continual laying. The meat type is not the converse of the egg type, even though the hen that is not a good layer is fit only for meat.

Meat Type Grows Rapidly.

The meat type, in all kinds of poultry, is the type that grows rapidly and at maturity carries abundant flesh, especially where the preferred parts of the meat are produced. The most desirable meat type is rather fine in bone, with the frame well knit but not too compact. Under any kind of good management a hen of this type that is in normal condition will be a good layer. She may not lay any better than a hen not quite so well fleshed, but she ought to lay just as well, and when

the time comes to make meat of her she makes more and better meat, and as a breeder she naturally tends to reproduce offspring that will make more and better meat.

Such hens are in reality of the dual-purpose type, no matter what their size or breed. They are equally valuable for eggs and meat. That is the kind of stock that will contribute most to the big increase in poultry that is wanted. It is the dual-purpose type of every breed—a type that exists in every breed, and can easily be made the prevalent type without detriment to any breed, and to the benefit of every breed—that has suffered from neglect.

Length of Lint in Cotton Crops, Proportions and Values Given

In the cotton crops of 1916 and 1917 the long-fibered Egyptian and sea-island lint was 0.7 and 0.8 per cent, respectively, of the total production; the long staple, with a length of 1⅛ inches and over, was 8.8 and 12.0 per cent; and the short staples of less than 1⅛ inches were 90.4 and 87.3 per cent. The amount of the crops was 11,450,000 and 11,302,000 bales of 500 pounds. This information has been obtained by the cotton-crop specialist of the Bureau of Crop Estimates of the United States Department of Agriculture. Excluding sea island and Egyptian, the long-staple cotton with a length of more than 1¼ inches was 1.3 and 1.2 per cent, respectively, of the entire cotton crops of 1916 and 1917.

Egyptian cotton is grown in southeastern California and southwestern Arizona under irrigation, and the sea-island cottone in South Carolina, Georgia, and Florida. Other long-staple cotton is produced mostly in the alluvial regions of Mississippi, between the Mississippi and Yazoo Rivers, known as the "Delta;" on similar soils in Arkansas along the Arkansas, Mississippi, and other large rivers; in eastern and northwestern Louisiana; in northeastern Texas, and eastern Oklahoma; and in northeastern South Carolina.

The short-staple cotton, under 1⅛ inches in length, sells for the lowest price. About December 1, 1917, this cotton had a price of 27.6 cents per pound to producers, as an average for the United States; the long-staple cotton with a length of 1⅛ inches and over but under 1¼ had an average price of 33.5 cents; the long staple lint 1¼ inches long and over, a price of 43.4 cents; and sea-island and Egyptian lint, a price of 72 cents per pound to producers.

UNCLE SAM'S HUNTERS RIDDING RANGE OF PREDATORY ANIMALS

Wolves, Coyotes, Mountain Lions, Bears, and Other Stock Killers Slain

Biological Survey Men Are Winning Their Spurs by Work for Benefit of Stock Raisers in the West

Pan, prize patron of the hunter, probably would applaud the annual kill by representatives of the United States Department of Agriculture, who are waging persistent warfare on predatory animals, if the ancient god lived in this age. With the same zest as that displayed by the people of Pan's period, the modern huntsmen of the department's Bureau of Biological Survey are avenging the depredations of vagrant and prowling animals which are inimical to flocks, herds, and systems of live-stock husbandry in the Western States. Predatory animals, such as wolves, coyotes, mountain lions, and bears, which prey on live stock, are being hunted assidously by these Federal forces.

During last May a Wyoming stockman lost 100 head of sheep and 7 colts, while his neighbor lost 50 sheep, which were killed by two male wolves. A Biological Survey hunter took the trail after the marauders and followed the pair until he was able finally to kill them. Another bureau trapper accounted for a pair of marauding wolves near Mosquito Lake, Wyo., which were credited with killing $4,000 worth of live stock a year. A third Government hunter recently killed a pair of old wolves which destroyed about $3,500 worth of farm stock a season. In the same locality an old white wolf, which killed 30 head of cattle last spring, also fell victim to the trapping skill of one of Uncle Sam's hunters.

Stockmen Ask Hunters' Aid.

In the region of the Rio Grande the "Texas Ranger" is venerated and respected on account of his courage and bravery. The Biological Survey hunters are winning similar spurs among the stockmen of the Western States. Throughout the year requests for the services of hunters are received from stockmen. Reported cases of depredations by predatory animals are investigated as soon as possible, and hunters are placed in the district if conditions warrant such action.

It took one of Uncle Sam's expert trappers five weeks to rid the Wind Cave National Park of coyotes which killed 13 of the antelope in that preserve. Another hunter finally captured an old coyote which was responsible for the death of $75 worth of sheep in a single week. Shortly after this Nimrod also caught the animal's mate, a notorious stock killer.

In the neighborhood of Yellowstone Park wolves, mountain lions, coyotes, and bears kill much game each year, although the Government representatives are gradually checking such activities. Recently one of the hunters bagged two old wolves, seven mountain lions, and a huge grizzly bear, the largest of its kind ever shot in that section.

The area over which the prowling marauders operate is large; and despite the trusty aim and clever trailing, trapping, and poisoning of the Biological Survey men, many stock killers still are at large. However, it is only a matter of time until they will be exterminated.

Avenging Trappers Trail Marauders.

One hunter is camping on the trail of a pair of old wolves, which annually have killed $2,000 worth of live stock, but trapping in that locality is difficult because the porcupines and cattle spring the traps. Another hunter is working for two old wolves near Du Bois, Wyo., which last spring killed 22 colts as well as a large number of cattle. Near Little Bitter Creek, Wyo., an old wolf which killed 50 sheep in one night at a neighboring ranch is doomed to die, while a large bear that has been running around Du Bois is also being sought. This bear has so injured several cows by breaking their legs and ribs that they had to be shot, and he also has a record of tearing up camps, breaking Forest Service fire boxes, bending tools, and damaging other camp materials.

The Bureau of Biological Survey is performing efficient work in conserving the present meat supply of the Western States by protecting animal husbandry from predatory animals. Every sneaking prowler that is trapped or killed means greater safety for the cattle and sheep on the range. The war in the West against wild, native animals is directly aiding in winning the war abroad against humans who apparently are inspired with the ideals of wild beasts.

PREVENTING FOREST FIRES.

Never build your camp fire against a rotten log.

Clear away all burnable material before building a camp fire.

A small camp fire is better than a large one and easier to control.

A neglected camp fire is as dangerous as one maliciously set.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

To Designate "Victory Farms."

Iowa farms which put in their quota of the Liberty wheat crop are to be designated as "Victory Farms," according to announcement by the county farm bureaus of the State. Posters with the legend "Victory Farm" will be given to the farmers by the school district cooperators late this fall. Those who sow spring wheat will be given their posters next spring. The wheat quota is 1 acre out of every 8. Allowances will be made on farms having an unusually large amount of untillable land.

More "Movies" to Aid Food Drive.

Plans of film production by the motion-picture laboratory of the department call for an output of about 1,000 feet of negative each week during the next six months. The larger production is intended to help in the national campaign for more food production, and plans for extensive distribution of the films, especially through the aid of the State colleges of agriculture, are being made. The themes to be treated in the films are of wide range, including, among others, the work of the department entomologists in fighting the "cootie," and the production of wheat in the Northwest, but all having a relation to the activities of the Department of Agriculture and allied forces in helping to win the war.

Industrial Center Increases Food.

Industry overshadows agriculture in Allegheny County, Pa., where large quantities of ammunition and shipbuilding materials are manufactured, but the Allegheny County farm bureau has found at least three ways of increasing the county food resources and thus diminishing the demand on the reserves of other communities. One result is that members of the Pittsburgh Field Club now sit on the front veranda of their clubhouse and see 150 sheep grazing on their golf links. Another result is that Pittsburgh garbage is being converted every day into pork by 400 hogs. The garbage is heated in tanks under pressure for 8 or 10 hours, freeing it from poisonous and foreign material. About 150 bushels of garbage are fed daily, producing pork at an estimated cost of 10 cents a pound live weight. The hogs will be finished with corn. A way also has been found of saving farm produce which might go to waste. A truck equipped with a complete canning outfit and accompanied by over a dozen experienced women is sent into the country districts to can surplus fruits and vegetables. This work is being done by the Women's Committee of the Council of National Defense, with the aid of the farm bureau.

Searching for Potato Wart.

The Bureau of Plant Industry, endeavoring to combat potato wart, which has appeared in gardens in eastern Pennsylvania, has sent six trained plant pathologists to survey the infested area and has several men from the State agricultural colleges engaged in the same work. Ten men from the Pennsylvania State department of agriculture and several others from the Pennsylvania State College of Agriculture are also on the ground.

A Thrift Center in Every Town.

Massachusetts has a county that can boast of a thrift center in each town in it. Sometimes these centers are in homes while in other localities they are located in shops, as neighborhood conditions indicate. Each center is used as a point from which to distribute literature, to organize the work so members of the community may meet, ask questions of the home-demonstration agent, or of others qualified, learn of the different ways in which the Government asks thrift to be observed, and to make community plans.

Missouri Farm Bureaus Unite.

The Missouri Farm Bureau Association, recently organized by the county farm bureaus in that State and centralizing their strength and influence, is to work for the advancement and protection of farm and home interests. It is to advocate desirable legislation, supply newspapers with material conveying correct ideas of farm problems and farm people, and cooperate with Federal and State agencies. Any Missouri county farm bureau cooperating with the State college of agriculture and United States Department of Agriculture is eligible for membership. Each county farm bureau is to be entitled to one delegate for each 350 members or fraction, and each farm bureau supporting home-demonstration work will be entitled, in addition, to a woman delegate.

ICE—DO YOU HAVE IT ON YOUR FARM?

Did you ever think of the money you would save and the added comfort you would have if you put up ICE?

The United States Department of Agriculture has for free distribution a bulletin that tells how to harvest and store the natural crop.

Indiana County Attacks Its Rats.

Morgan County, Ind., had more rats and mice than it wanted, so it planned a "rat week." The purpose was to start a concerted attack on the rats and mice in the week previous to the storing of grain. The county agent advertised in the papers and enlisted the members of the United States Boys' Working Reserve. Reports are incomplete, but the county agent believes the number of rats had been greatly reduced and consequently a large quantity of grain has been saved. One boy reported that he killed 97 rats and 393 mice. Another killed 84 rats, a third 37, and a fourth 28.

Iowa Wheat Production Increased.

In response to the call for more wheat, 46 per cent of Iowa farmers planted approximately 550,000 acres to spring wheat, where last year only 250,000 acres were planted. This result is credited to a campaign begun in March, 1918, and carried on by county agents and farm bureaus. Orders for 128,541 bushels of spring wheat for seed were taken by the farm bureaus, and 168,122 additional bushels were located and distributed by county agents within their own counties. In addition to this the agricultural extension department of the Iowa State College of Agriculture, beginning in August, 1917, carried on through the county agents a vigorous campaign to increase Iowa's acreage of winter wheat. As a part of this campaign 316,687 bushels of

salable seed winter wheat were located and listed. The information was carried to the farmers through newspapers, seed-wheat lists, county agents and special seed-wheat agents, who were sent into 39 counties in the southern part of the State, at that time without regular county agents.

Pledges Increased Production.

"Realizing that the production of food and clothing materials is essential to our Army and Navy and our allies," the officers of the Placer County Farm Bureau, California, recently pledged themselves "to put forth every possible effort to increase Placer County's output of food crops and live-stock production, to do all possible to encourage our neighbors to produce a maximum amount of such products, and finally to participate to the fullest extent in the activities of the farm bureau in relation to the war."

Farmers Can Vegetables for Camps.

The boys at the military camps at the State University in Indiana will not want for canned vegetables this winter, nor will the quality be open to criticism. La Porte County, Ind., this summer, acting en a suggestion of its home-demonstration agent, undertook to supply the camps at Purdue with canned vegetables.

Fashion Show for War Year.

A fashion show in tune with war-time economy was recently held in Allegan County, Mich., under the direction of the home-demonstration leader of that locality. This show was given in connection with the county fair. Instead of wearing, as is usual at fashion displays, creations from Paris or New York, the girls wore made-over gowns constructed from out-of-date garments.

Deferred Men Pledge More Food.

A 10 per cent increase in the production of swine and wheat in 1919 was pledged by the Deferred Men's Organization of Madison County, Ind., in two rousing meetings recently held in Anderson. Spring wheat in this county yielded as high as 33 bushels an acre.

Agricultural Films in Exposition.

Department of Agriculture motion pictures had part in the motion-picture exposition held October 5 to 13 in Madison Square Garden, New York. The department exhibits included colored bromide enlargements of "stills" taken from agricultural films; charts showing films already on hand and those in preparation; and a map showing the proposed plan of distribution through State colleges and forest supervisors.

Community Agrees to Conserve Wool.

One whole community in Iowa has pledged during the remainder of the war to conserve clothing in every possible way, especially wool, by not buying new coats, suits, sweaters, and dresses unless absolutely necessary. The home demonstration agent who reports the fact to the United States Department of Agriculture had pointed out to the community the necessity of making the limited wool supply go as far as possible toward meeting war needs.

FARMERS ASKED TO REPORT EELWORMS IN THEIR WHEAT

(Continued from page 1.)

Clean, sound seed from fields in which the disease does not occur should be used wherever possible.

How to Clean Diseased Seed.

If disease-free seed can not be obtained, the "salt-brine" method is recommended for separating the infected kernels, or galls, from the good wheat kernels. A 20 per cent salt solution should be made by dissolving 40 pounds of common salt in 25 gallons of water. The diseased seed should be poured slowly into this solution, which meanwhile is stirred vigorously. The sound wheat kernels will sink, while the galls, light kernels, and trash will float. The galls and other floating material may be skimmed off, after which the salt solution, which may be used repeatedly, should be drained away and the grain rinsed in water immediately. After the grain is dried by spreading it on a floor or canvas and stirring occasionally it is ready for planting.

The diseased galls should never be thrown on the ground or otherwise disposed of until they have been plunged for a few minutes into boiling water to kill the eelworms. After being given this boiling process they may be fed to chickens.

Signs of Infection.

The disease is usually indicated by its effect on wheat heads in the fields, although it may occur to some extent on all parts of the plant above the ground. Diseased heads ordinarily stay green longer—that is, ripen later—and are commonly smaller than those not affected, while the chaff or glumes may be spread open a little by the black eelworm galls. These galls come in the wheat heads in place of good kernels. They are dark and hard, and somewhat shorter and thicker than wheat grains. Often these can be seen plainly in the affected heads between the spreading glumes.

Eelworm's Life Cycle.

Within the wheat galls are thousands of very small living but motionless "baby nematodes," called larvæ. These, when placed in water, can be barely seen as short, thread-like fibers, which soon begin active movement. In the spring the young eelworms escape into the soil from galls which have fallen to the ground or which were sown with the wheat seed. With an eel-like movement they reach the young seedlings, finally become located between the leaf sheaths near the buds, and as the plant grows are gradually carried up to the heads. There they enter the young flowers and produce the galls, where they grow to maturity and lay eggs which develop into larvæ. Thus the life cycle is completed. At maturity of the plant the larvæ in the galls become dried and motionless, and can remain in that condition alive for many years.

In addition to the sowing of disease-free seed, either naturally clean or cleaned by the "salt-brine" method, department specialists advise other precautions. Land on which infected wheat has been grown should be planted to other crops for two or three years. Any crop may be used in the rotation, since only wheat is known to be seriously attacked by the disease.

PREVENT FIRES; HELP UNCLE SAM.

Who wants to be a German? Protect your country; don't destroy it by setting fires.

Are you working for Uncle Sam? Preventable fires must be made impossible. Be careful with fires at home and in the forest.

Are you fighting for your country? Are you making preventable fires a thing of the past? This can be done. You must be careful with fire.

A ton of sugar cane has produced from 119 to 151 pounds of refined sugar in Louisiana in recent years; the sugar product of a ton of beets has been 210 to 285 pounds.

COTTON QUOTATIONS APPROACH NORMAL DURING INVESTIGATION

Disparity in Future and Spot Prices Reduced While U. S. Holds Hearings

Market Is Believed Opening for Surplus Low-Grade Product—Report on Federal Inquiry Is Expected to Be Made Soon

In announcing the completion of a series of hearings regarding the recent extraordinary disparities in the prices of cotton as quoted on the future exchanges and by the spot markets, the Department of Agriculture says that since the investigations began the disparity in the quotations has been considerably reduced and for the past five or six weeks the relationship has been nearly normal.

Assurances have been received, according to the department announcement, that specifications requiring the use of high-grade cotton are being eliminated from Government contracts, and it is believed that a market is being opened up for the surplus stock of low-grade cotton.

It is anticipated that the Bureau of Markets, which conducted the investigations, will be able to make a complete report to the Secretary of Agriculture at an early date. Since March the bureau has been trying to secure the utilization of low-grade cotton and has a representative in Europe for this purpose. It also endeavored to assure, through its contact with the spot exchanges, the accuracy of quotations for cotton of grades other than middling.

Hearings in 13 Cities.

Hearings have been held under the direction of Charles J. Brand, chief of the Bureau of Markets, in 13 cities at which future and spot cotton markets are located. These were New York, Boston, Norfolk, Augusta, Atlanta, New Orleans, Memphis, Little Rock, Dallas, Houston, Galveston, Montgomery, and Savannah.

As early as last March the Bureau of Markets became aware of conditions in regard to the marketing and distribution of the cotton crop which indicated that the normal demand for high-grade cotton was being exceeded, and that the demand for low grades was falling behind. Realizing that serious results might follow, the bureau immediately took steps to secure the proper use of low-grade cotton. Shortly thereafter, in April, an unusual disparity between the prices quoted for cotton on the future exchanges and the prices quoted for spot cotton in the spot markets became noticeable. This disparity gradually increased. The prices of futures fell far below those of spot cotton, in fact, as much as 5 or 6 cents a pound. The usefulness of the future exchanges to the spot-cotton interests for their hedging transactions became greatly impaired, and in May the Secretary of Agriculture directed the chief of the Bureau of Markets to make a special and complete investigation of the matter.

High Grades and Government Contracts.

Having been informed that Government contracts were requiring the use of high-grade raw cotton, the Bureau of Markets took up the question with the various purchasing organizations of this Government, including the War and Navy Departments and the War Industries Board. The War Industries Board recommended that the purchasing organizations of the Government refrain from stipulating any specific grade of cotton for use in cotton goods which the Government might be ordering, and that those organizations confine their specifications to the proper and necessary requirements which the manufactured goods must meet. Nevertheless, the demand for high grades increased and the market for low grades rapidly grew smaller. It was also found that exportation was being very largely confined to high grades. From time to time the bureau took up with the various spot markets the question of the accuracy of their quotations and early in August proceeded to hold hearings at the New York Cotton Future Exchange and in Boston, Mass. At the same time it sent a representative to Europe, where he now is, for the purpose of taking up with the governments and spinners of allied nations associated with this country in the war the question of utilizing a greater proportion of our supply of low-grade cotton. Further hearings were held at Norfolk, Va.; Augusta and Atlanta, Ga.; New Orleans, La.; Memphis, Tenn.; Little Rock, Ark.; Dallas, Houston, and Galveston, Tex.; Montgomery, Ala.; and Savannah, Ga., the series of hearings closing at the last-named place.

Information on War Needs.

Throughout the course of these hearings a large mass of valuable information was furnished regarding the effect of the European war, the contracts and other requirements of the Government of this country and other countries associated with it in the war, the transportation and export situation, the possibility of substitution of low grades for high-grade cottons in the manufacture of certain articles, the operations of the future exchanges, the manner in which spot quotations have been made in the spot markets, and the respective attitudes of the spinners, dealers, and farmers. The subjects discussed were numerous and covered a very large field.

The department is also making spinning investigations to obtain precise knowledge of the extent to which low grades may be substituted for high grades in commodities manufactured from cotton and the ability of the mills to readjust the proportions of the various grades used by them.

Acre Yield of Potatoes Increases; 36 Per Cent Gain in Twenty Years

The yield of potatoes per acre is gradually increasing in this country, as shown by the records of the Bureau of Crop Estimates of the United States Department of Agriculture. During 1866–1874 the average annual yield per acre was 91 bushels, but the average markedly declined to 71.3 bushels in 1885–1894. Perceptible recovery was made in the following 10-year period and a much larger recovery, rising to a new high-water mark, was reached in 1905–1914, with its average yield of 97 bushels per acre.

In 20 years the productivity of the average potato acre increased 36 per cent. This increase is due to various causes, among which are greater specialization of production, more intensive treatment, and higher fertility of the soil. The 10-year average yield of 97 bushels per acre in 1905–1914 was followed by 96.3 bushels in 1915, 80.5 bushels in the very low year 1916, and 100.8 bushels in 1917.

Compared with population, the yield per acre declined from 1866–1874 to 1905–1914. The gain of production per capita in recent years has been more because of increased acreage than because of increased production per acre.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended October 12, 1918:

Highway Cost Keeping. Department Bulletin 660.

Standards for Milled Rice. Bureau of Markets Doc. 15.

Systems of Hog Farming in the Southeastern States. Farmers' Bulletin 985.

The Preparation of Bees for Outdoor Wintering. Farmers' Bulletin 1012.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — OCTOBER 30, 1918 — No. 13

ADVANTAGE OF MOTOR TRUCKS SHOWN IN FARMING REPORTS

Longer Hauls at Less Cost Disclosed in Reports to Department

Auto Expense Decreasing Because of Greater Efficiency—Made-Over Passenger Cars and Trailers Often Used

Motor-truck hauls in 1918 from farm to shipping point averaged 11.3 miles, while wagon hauls averaged 9 miles; and a motor truck made 3.4 round trips per day over its longer route of 11.3 miles, while wagons made 1.2 round trips per day over the 9-mile distance.

The estimated cost for hauling in wagons from farm to shipping point averaged in 1918 about 30 cents a ton a mile for wheat, 33 cents for corn, and 48 cents for cotton; for hauling in motor trucks or by tractors the averages are 15 cents for wheat or corn and 18 cents a ton-mile for cotton. These figures are based on reports made by correspondents of the Bureau of Crop Estimates of the United States Department of Agriculture.

Motor Cost Declines.

A similar inquiry in 1906 showed an average for wagons of 19 cents per ton-mile for hauling corn or wheat, and 27 cents for cotton. In 1918 wagon costs were naturally higher, since prices and wages have increased, but motor-truck costs were much lower in 1918 than even the wagon costs of 1906, due to greater efficiency of the motor truck.

The cost of wagon hauling a ton-mile for wheat among the geographic divisions in 1918 was lowest in the Pacific States, 22 cents. Above this, in order, are the North Central States east of the Mississippi River, with 26 cents; the West North Central States, 29 cents; the West South Central, 32 cents; the East South Central, 36 cents; New England and the Middle Atlantic States, 38 cents; the South Atlantic States, 39 cents; and, highest of all, the Rocky Mountain States, with 42 cents a ton-mile.

In motor-truck hauling the order of the different divisions of the country begins with 9 cents a ton-mile for wheat in 1918 in the East North Central, 10 cents in the East South Central, 14 cents in New England, the Middle Atlantic, and the West North Central, 15 cents in the West South Central, 17 cents in the Pacific, 18 cents in the South Atlantic, and 29 cents in the Rocky Mountain States.

Trailers Often Used.

The motor trucks generally in use by farmers are not large trucks, but small ones whose nominal capacity is usually 1 to 2 tons. In quite a number of counties throughout the country the trucks used for hauling are made-over passenger cars. In some cases light wagons are attached as trailers to ordinary passenger cars and produce is taken to market in that way. In North Dakota and California, as well as other States, tractors, each drawing several wagons, are used for hauling grain. Trailers are also used, especially in the West, with horse-drawn wagons.

For the United States as a whole the average wagon load of wheat was 55 bushels in 1906 and 56 bushels in 1918, and the motor-truck load in the latter year was 84 bushels. For corn, the wagon loads of 1906 and 1918 were 39 bushels, and the motor-truck load of 1918 was 58 bushels. The cotton load for 1906 and 1918 for wagons was 3.4 and 3.6 bales, respectively, and for motor trucks 6.6 bales in 1918.

For the wheat crop of 1917 the farmers of this country received an average price of $2.05 per bushel; for 1916, $1.44; for 1915, 98 cents; 1914, 99 cents; 1913, 79 cents, as estimated by the Bureau of Crop Estimates. In the past year, State averages (excluding States producing less than 1,000,000 bushels) ranged from $1.83 per bushel in Utah to $2.66 in South Carolina.

RURAL schools and churches, even more than homes, should restore the old wood pile and make themselves sure of warmth this winter. Every building used during only part of the day or on one or two days a week should burn wood.

WAR SPIRIT DRIVES FORWARD IN BOYS' AND GIRLS' CLUBS

Will to Work for America Shown in Reports from Southern States

Elders Inspired by Attitude of Young People—Obstacles Met and Passed by Organizers for Department and States

Among no class is the war-work spirit more manifest than in the membership of the boys' and girls' clubs of the South. Extracts from field reports that have recently come to the States Relations Service, United States Department of Agriculture, bristle with it. Even "children of a larger growth" are taking a keener interest in conservation, spurred on by the example of their young teachers.

A Bit of the War Spirit.

Here is a touch of the war-work spirit. A little chap from Spartansburg, S. C., too young to get into the ranks, but patriotic enough to want to do his full part, told the field agent that he was sorry he was not old enough to fight in Uncle Sam's big army, but that he had done his "bit" by raising tomatoes, peanuts, and beans. He sized it up this way: "Every time I canned a tomato out of my garden I fe that I was knocking down a German."

Another: A girl in Rustburg, Va., "on of the most capable 17-year-old girls I have seen in a long time," writes the service representative, has already put up hundreds of jars of fruit and vegetables, according to Government direction, has been knitting sweaters and making quilts, and when not otherwise occupied has been making all her own apparel.

Nor is this feeling lacking among the older element. There are men and women, white and colored, and some of foreign nationalities, who, actuated by the "win-the-war" motive and inspired by the successful efforts of their daughters and sons, have caught the spirit and are working with a will. A typical case is that of a man in Manassas, Va., 86 years young. He was out mowing and when asked if he didn't think it was too much for him to be making such an ef-

fort replied: "The boys over yonder can't stop; we must keep working to keep them going."

War Spirit Dominant.

Although the war spirit is dominant, there is no cessation, according to advices received, in the routine work of the southern clubs. The extension service through its county agents is constantly forming new organizations while stimulating the efforts of those already existing. This, it seems, by no means is plain sailing, for almost insurmountable obstacles are met with in every direction—prejudice, indifference, and positive opposition. By suasion and tactful perseverance these drawbacks invariably have been overcome and often larger and more efficient organizations are the result.

Enthusiasm that follows in some places—it is real enthusiasm and not hysteria—is remarkable. In a case in South Carolina, for instance, there was all opposition the first day and an organization of 149 the next. This unit became a canning club, putting up beef and venison with steam-pressure canners and according to Government directions. Another case in Alabama—a zero start in the morning and a 250 enrollment in the afternoon.

In addition to farm management, marked success has been noted among girls who are doing actual hard labor. Truck gardening and plowing is not unusual for them, says the States Relations Service. These reports, forwarded by field agents and county demonstrators, the department looks upon as very encouraging.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for assistant in market business practice, grade 2, for both men and women, on December 4, 1918. Several vacancies in the Bureau of Markets, Department of Agriculture, with headquarters in Washington, D. C., at entrance salaries ranging from $1,200 to $1,800 a year, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

The wool-production estimate of the Bureau of Crop Estimates makes the clip of 1918 amount to 257,921,000 pounds in the grease. Pulled wool is not included. The clip of 1917, revised estimate, was 241,892,000 pounds.

PREVENTION IS BETTER THAN CURE IN POULTRY DISEASES

Timely Measures Properly Applied Offer Surest Means of Control

Keep Germs on the Defensive, Bulletin Advises—It's Often Wise to Kill Sick Fowls—Susceptible to Many Ailments

Poultry raisers who wait until disease appears in the flock and then prepare to make a defensive attack are likely to be successful only in rare cases. By far the best plan, say poultry specialists of the United States Department of Agriculture, is to care for the flock in such a way that disease will not appear. The aim in controlling the diseases of poultry is, they add, to learn how to prevent them rather than how to cure.

To enlighten poultry owners as to the characteristics of the more important diseases in order that they may intelligently use the most improved methods of combating them Farmers' Bulletin 957, "Important Poultry Diseases," has recently been published by the department. The causes, symptoms, and treatment of poultry ailments, from aspergillosis (brooder pneumonia) to worms, are given in this publication.

Killing Often Advisable.

As all poultry is susceptible to many diseases, some of which are highly infectious and resist all efforts of treatment, the bulletin suggests that when birds become sick it is often the best plan to kill them. The greater the number of birds kept upon any farm or plot of ground, and the more they are crowded together, the more important are the measures for excluding, eradicating, and preventing the development of the causes of disease.

When disease appears among poultry the fowls should be removed from the poultry yard and a good coating of freshly slaked lime should be applied to the entire surface of the ground, according to the bulletin. After a few days it should be plowed and then cultivated three or four times at intervals of a week and finally sowed with oats, rye, or other grain. It is best to leave the ground unoccupied by fowls until the winter has passed. After the fowls have been returned the premises must be frequently cleaned and occasionally disinfected.

How to Disinfect.

The drinking fountains and feed troughs must be washed every week with boiling water or other disinfectant, and if any lice or mites are found on the birds or in the house the roosts and adjoining parts of the walls should be painted with a mixture of kerosene, 1 quart, and crude carbolic acid or crude creosol, 1 teacupful. The house may be whitewashed with freshly slaked lime or sprayed with kerosene emulsion. In case of an actual outbreak of a virulent disease it is well to add to each gallon of the whitewash 6 ounces of crude carbolic acid. Good disinfectants destroy the germs of contagious diseases, the external parasites, such as lice and mites, and in some cases the eggs of parasitic worms, and should be used frequently in and about the poultry house.

Potato Production Is Nearly Enough to Meet Home Uses

The potatoes used in this country are almost entirely those raised in the United States, says the Bureau of Crop Estimates of the United States Department of Agriculture. The average crop of 1905–1914 was 343,391,000 bushels, and the crops of 1915, 1916, and 1917 were 359,721,000, 286,953,000, and 442,536,000 bushels, respectively.

Of potatoes produced abroad, this country's consumption in the trade and crop year beginning with July, 1849, was 173,000 bushels, and the quantity had risen to only 234,000 bushels on the average in 1866–1874. In the next ten years the average yearly consumption of imported potatoes was 2,158,000 bushels, followed by increase to 3,018,000 bushels in 1885–1894, the highest average of any ten-year period.

Now and then a year of deficient production has come which invited relatively large importations of potatoes, mostly from the United Kingdom and Germany, and 1911 was the year of greatest crop shortage, with imports of 13,729,000 bushels. Usually the imports of potatoes are less than 500,000 bushels. In ten-year averages imported potatoes have never been as high as 2 per cent of the consumption, and in more recent years they have been about 1 per cent.

While foreign potatoes have been arriving, domestic potatoes have been departing in somewhat greater quantities in a majority of the years, so that it is fair to say that, although in the sum of many years we have imported more potatoes than we have exported, the preponderant fact in a majority of years has been a small national surplus of potatoes.

Conspicuous increase in the per capita production of potatoes has followed the average of 2.9 bushels in 1885–1894. In the following ten-year period the average

was 3.45 bushels, and in 1905–1914 it was 3.8 bushels.

Per capita consumption increased from 2.88 bushels in 1866–1874 to 3.25 bushels in the following ten-year period, after which there was a decline to 2.98 bushels in the next ten-year period. In 1895–1904 the per capita average was 3.46 bushels; in 1905–1914, 3.77 bushels; in 1915, 3.55 bushels; in 1916, 2.82 bushels, and in 1917, 4.19 bushels. In the last-mentioned ten-year period and in 1915 the per family consumption was 17 bushels; in 1916, 12.7 bushels, and in 1917, 18.9 bushels, the largest of record.

The per capita and per family consumptions include potatoes used for all purposes—not only as food for human beings, but for seed, for live-stock feed, for potato starch, and other products, if any, and some degree of waste. About 10 per cent of the potato crop is used annually for seed and starch; for the remainder of the consumption, the per family average was about 15.2 bushels in 1905–1914, 14.4 bushels in 1915, 11.4 bushels in 1916, and 17 bushels in 1917.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended October 19, 1918:

Controlling the Garden Webworm in Alfalfa Fields. Farmers' Bulletin 944.

Game Laws, 1918. Farmers' Bulletin 1010.

A Five-Year Farm Management Survey in Palmer Township, Washington County, Ohio, 1912–1916. Department Bulletin 716.

A Method of Preparing a Commercial Grade of Calcium Arsenate. Department Bulletin 750.

Hatch Early. Early Chicks Produce Best Results. B. A. I., Animal Husbandry Division, Circular G–28.

Standards for Milled Rice. Bureau of Markets Document 15.

Instructions for the Sampling, Handling, Analyzing, and Grading of Samples of Milled Rice. Bureau of Markets Document 16.

Report of the Porto Rico Agricultural Experiment Station, 1917.

More Money for Better Hides. Two-Color Poster.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

A successful county agent must have confidence in his own ability and in that of the farmer, understand the problems of his locality, and be sincere in his interest.

GET EXCELLENT RESULT FROM THEIR WAY OF USING MANURE

Pennsylvania Farmers Pile It in Covered Yards, Animals Tramp It Down

Proper Fermentation Favored by Method Recommended in Bulletin—Much Loss Through Heating and Leaching Prevented

Farmers who are confronted with the problem of maintaining soil fertility—important in carrying out increased food production—will find it profitable, the United States Department of Agriculture suggests, to study the methods of handling barnyard manure, practiced in parts of eastern Pennsylvania, where excellent results in adding to crop yields have been secured.

These methods are described in Farmers' Bulletin 978, recently published by the department. For over a century it has been the custom in this region to store stable manure in a walled manure yard, partly or wholly covered, in which the stabled animals are allowed to exercise during the day. Manure thrown into such a yard and thoroughly tramped by stock, according to the department's bulletin, loses much less through heating and leaching than does manure piled in the open.

Proper Fermentation Favored.

Nearly all manure produced on the farms in the region to which the bulletin refers accumulates in the manure yards. All cornstalks, straw, and other roughage not used as bedding are added as needed to take up excess liquids. In this way the covered portion of the barnyard not only affords a dry and comfortable shelter for the live stock during the winter months, but it protects the manure so that no leaching occurs. In some instances the corn fodder is run through a cutter, which increases its power of absorption and makes the manure easier to handle. The tramping of the stock packs the manure, so that an even temperature is obtained, which seems to favor proper fermentation, as is evidenced partly by the strong odor of ammonia in the vicinity when the manure is being removed, and partly by absence of dry combustion, or "firefang," so common in manure piles exposed to the weather.

Occasionally a farmer is found who sprinkles land plaster on the manure at intervals, the amount ranging from 1 to 2 tons a year, applied at the rate of a bushel a week. Disintegrated feldspar rock, common in the vicinity, has been used with good effect, but as a general thing the manure is not treated with chemical fertilizers.

How Manure Is Applied.

The manure is hauled to the fields twice a year on the majority of farms. Many farmers apply it during the winter when the ground is frozen and hauling is easier and when there is more time for this work, but this should not be done on hillside land or where there is danger of the manure being washed away when the snow melts and before the ground is sufficiently thawed to allow the soluble material to sink in. In general practice the sod is usually manured in the early spring at the rate of 8 to 10 tons an acre and is immediately plowed and rolled. In the fall manure is applied to oats and corn stubble land. The barnyard is so arranged that the team and spreader can be driven into any part of it, including the covered portion, where loading can be done directly.

The bulletin describes in detail the crop rotation plan and methods of handling manure on 10 Chester County farms, on each of which the yield of corn is maintained at 75 bushels or more an acre and where high yields are being made at no sacrifice of profit. These farms offer good examples of the way in which manure should be handled and utilized to secure the greatest possible returns.

Adhesive Gum and Other Useful Substances Made From Corncobs

Corncobs—a great waste product in the world's greatest corn-producing nation—have been made to yield adhesive gum and other useful substances in quantities sufficient to convince chemists of the United States Department of Agriculture that the nucleus of a profitable and important industry lies in this direction.

In addition to adhesive gum, experiments have produced cellulose and glucose, both of which have many commercial uses. The glucose so produced crystallizes well, and it is believed can be used in the same ways as crystalline glucose from starch. Manufacture of alcohol by the fermentation of corncob glucose appears practicable if sulphuric acid is obtainable cheaply.

To utilize corncobs commercially, the chemists believe, a large and costly plant would be necessary, and the Bureau of Chemistry does not advise any enterprise of the sort in war time.

The soy bean is more drought resistant and also less sensitive to an excess of moisture than either cowpeas or corn.

War Conditions Cause Development of Seed-Growing Industry in This Country

Since the European sources of vegetable seed have been cut off by war conditions, the seed-growing industry in the United States has made rapid developments, particularly in the Pacific Coast and Rocky Mountain States, according to a report of the Bureau of Crop Estimates, United States Department of Agriculture.

An added stimulus to this industry has been the increased number of war gardens which have been planted in all parts of the country. The commercial production of vegetable seeds is chiefly confined to a few widely separated but well-defined districts, but in exceptional instances the industry has been introduced into new sections through the efforts of contracting seedmen who have sought to expand the production by entering new areas.

The production of onion seed is carried on in many localities. Most of the western districts where onions are grown for market also raise seed for their own use and sell the surplus. The largest section of production for onion seed, however, is known as the "river district" of the San Joaquin and Sacramento Valleys in the central part of California. The district of secondary importance as a producer of onion seed is the San Juan and Santa Clara Valley region of central California. The leading county in the production of onion seed is San Joaquin, with Sacramento, Yolo, Contra Costa, Santa Clara, and San Benito also growing a good volume. Seed is also being produced in Delta County, Colo. The Bermuda onion seed is produced in the Coachella Valley, in the eastern part of Riverside County in southern California. It is also successfully grown in New Mexico and Arizona.

Carrot Seed in California.

California is the largest producer of carrot seed. Sacramento and Yolo Counties rank first, with San Joaquin, Contra Costa, Santa Clara, and San Benito Counties ranking as minor producers. In the production of radish seed the situation is reversed, the coast counties of California producing the bulk of the crop, and the river district being unimportant as a producer. It is also grown in the Pacific Northwest. Beet seed is grown in both the river and coast districts of California, but is probably grown more extensively around Sacramento than in any other portion of the State. Lettuce seed is grown almost exclusively near the coast sections of California, particularly in Santa Clara and San Benito Counties and also in San Luis Obispo County.

The pea-seed growing districts are widely scattered, but are somewhat restricted by the pea weevil. The two largest districts are in eastern Washington and eastern Idaho. Pea seed is also grown commercially in western Washington, southern Idaho, northern Utah, the central coast counties of California, and in Montana. The Fairfield district of Washington and the St. Anthony district of Idaho, however, stand out as the two big districts. The former is the center of the areas in Spokane and Whitman Counties, and the latter is headquarters for areas in Bonneville, Madison, Jefferson, and Fremont Counties. The Twin Falls district of Idaho, the Puget Sound district of Washington, the Half Moon Bay district of California, and the Cache Valley of Utah might also receive special mention as growers of seed peas.

Other Vegetable Seed.

The production of seed of the garden varieties of beans is concentrated in portions of Colorado, California, Washington, and Idaho. The Greely district of Colorado is the leading district. Lima-bean seed growing is confined to the coast counties of Southern California. Cantaloupe and cucumber seed is produced extensively in Colorado, particularly in the Rocky Ford district or the Arkansas Valley. Tomato seed is most extensively produced in Orange County, Cal., south of Santa Ana. Other seed crops produced in this district are peppers and various vine crops. The principal cabbage-seed growing district is in the Puget Sound country, but the growing of cabbage seed is being tried out in other localities and new districts of importance may be developed. This statement also applies to turnip seed.

Spinach seed is produced in California and in the Northwest. During the past season the industry has developed, particularly in Yolo and Sacramento Counties of California, but is not confined to that region. Other miscellaneous seeds of minor importance, such as parsnip, salsify, and endive, are grown most extensively in San Benito County, Cal. Cauliflower and broccolii seed are grown in the market growing districts, but have become commercial products only in the Pacific Northwest. Onion sets are grown in the Willamette Valley of Oregon, near Woodburn, and also in eastern Colorado.

THERE is plenty of wood in the Eastern and Northern States, millions of cords of it uncut, ready to be chopped. It is practicable mainly for the use of farmers and villagers.

Lost—A Common Factory Hand; Found—A Good Food Producer

Four years ago a garden-club boy in Massachusetts faced what would have seemed even to an adult a hard problem. Born in Italy, but thoroughly inoculated with American ideas of the necessity of education, James was told by his father while in the eighth grade that no longer could he be kept in school. His future path was to lie toward the near-by factory.

Believing, because of his garden-club experience under the auspices of the local leader for the United States Department of Agriculture, that he could earn as much by potato raising outside of school hours as he could in a factory by devoting his whole time, he finally obtained permission from his father to try it. So successful was he that summer that his father was willing he should enter the ninth grade in the fall.

The next spring the superintendent let him have land to use for a large garden. To 10 boys he had selected from the upper grammar grades he made the proposition to pay so much an hour and to give each a garden plot. The following excellent advice he offered to them in addition: "If you are going to quit, quit now while it is cool and not when it is hot next August."

By fall he had decided that enough could be earned in the summers to enable him to attend high school and the agricultural college later. Now a junior in high school, he has a good-sized hothouse under lease, where he raises cabbage, cauliflower, and tomato plants; he owns an auto truck to handle his produce; has a bank account and pays his bills by check, and owns at least one Government bond.

With all the school and business cares, he still has time to look after the school welfare of his younger brothers and sisters, visiting their teachers and watching their progress.

A factory hand, probably only a mediocre one, has been lost, but a good food producer has been gained through the vision given James by his boy's agricultural club leader.

It is estimated by the Bureau of Crop Estimates that the number of stock hogs September 1, 1918, was 65,066,000, an increase of 4,848,000 in a year.

ASKS GARDENERS TO WATCH FOR CASES OF POTATO WART

Department of Agriculture Fears Disease Carried by European Shipments

Industrial and Mining Towns Most Likely to Be Infested—All Instances Should be Reported to Federal or State Authorities

Gardeners in all parts of the country are asked by the United States Department of Agriculture to watch for instances of potato wart, a disease that has been discovered in gardens in 10 small mining towns in Luzerne County, eastern Pennsylvania, and that it is feared has been carried by European shipments to other districts. The disease may be recognized by irregular, warty outgrowths, beginning in the tender tissues near the eyes and enlarging until the entire potato may be changed into a black and worthless mass.

All suspicious cases should be reported to the Department of Agriculture, Washington, D. C., or to the State colleges of agriculture. All diseased potatoes should be burned and the infected ground staked off.

The extent of the infestation in Luzerne County has not yet been determined, but an active survey of this and other districts is now under way. In most of these gardens it has been observed by the owners during the last two seasons. In many gardens it has been severe for three years, while in a few instances it has done considerable damage for four years.

From European Source.

The source of the disease appears to be a shipment of several carloads of European potatoes of inferior quality, distributed in 1912 before the passage of the plant quarantine act. Since that date the importation of potatoes from countries where potato wart is known to exist has been prohibited by the Federal Horticultural Board, but the disease has evidently become established in some localities.

The wart is a disease attacking the tubers and also the stems. The young galls are whitish or greenish, suggesting a cauliflower head. In the present outbreak the disease manifests itself in a very severe form, though in a limited area, practically destroying the whole crop in many of the gardens affected.

There is little danger that the disease will spread rapidly to neighboring States, as the Pennsylvania State authorities, under the leadership of Economic Zoologist J. G. Sanders, are cooperating in the survey and will take the necessary restrictive measures to prevent infective material from moving out of the district. Furthermore, since the infested towns are isolated and nonagricultural, there is no outward shipment of potatoes.

Feared in Other Places.

It is feared that other shipments of European potatoes, made prior to the quarantine, have carried the disease to other districts. It should be sought for especially in the gardens of industrial and mining villages, which were the principal markets for cheap foreign potatoes. In such places garbage is thrown into the garden and potatoes are grown continuously, thus favoring the spread of wart disease.

European experience with wart disease, particularly in England, indicates it to be a very serious trouble. The saving feature is the discovery that certain varieties of potatoes are immune, and only these are now allowed to be planted on infested land.

No American varieties have yet been found resistant. The English sorts will be tried, though experience to date is that European potatoes as a class do not give good results in this country.

HOW GOOD ICE MAY BE ASSURED FOR FARMS BY USING NATURE'S SUPPLY

To have good ice on your farm be sure the supply of water is pure. Clear the pond or stream of vegetable matter; otherwise it will be frozen in the ice. Protect the water supply from drainage from contaminating sources such as privies, barnyards, and refuse heaps. Keep the ice surface clear of snow, as it retards freezing.

Mark off the surface into cakes of the desired size, being sure that the lines form rectangles. Cut out a strip of ice the width of the cake desired. Force this strip under the surface of the ice field, thus opening a channel to the landing. Saw off large cakes and float them to the landing, where they may be cut into smaller cakes.

Not Many Tools Required.

For the average farm the only tools required are two saws, two pairs of tongs, two ice hooks, one pointed bar, one straight board for marking.

Where cream only is to be cooled, allow at least one-half ton of ice per cow in estimating the size of an ice house you need. For cooling milk, allow 1½ tons per cow. These quantities should be enough to leave a margin for household use; but it is better to have too much than too little. Whenever practicable, build the ice house in the form of a cube. Allow 45 cubic feet of space for each ton of ice.

Location and Drainage.

Locate the ice house in a shady place near the dairy house, and where there is good natural drainage. If water from the melting ice is not removed, melting will proceed at a more rapid rate. If the house is built on sloping, porous ground, natural drainage should be sufficient; but if on a clay soil, artificial drainage should be provided.

Use plenty of insulation. If sawdust or mill shavings are used, see that they are dry. Commercial insulation is more efficient and durable than either but is more expensive. Wooden houses insulated with sawdust or mill shavings should be ventilated. Houses with commercial insulation and a cement finish need no ventilation.

The Dairy Division, United States Department of Agriculture, Washington, D. C., has further information about ice houses and the use of ice on the dairy farm. Don't wait till the last minute, or you may be too late. As soon as fall work is done, begin preparations for storing ice.

ICE! Harvest a crop in midwinter! No seed or fertilizer needed. The United States Department of Agriculture has a bulletin that tells how to bring in this natural crop and store it.

GROUND SOY BEANS FOR PIGS

As a supplement to corn meal for growing and fattening pigs, the Wisconsin station found that ground soy beans proved about 10 per cent superior to wheat middlings, figuring the cost of the feeds as the same. The Indiana station compared rations of two parts of corn meal and one part of soy-bean meal with corn meal and wheat middlings in equal proportions and with five parts of corn meal and one part of tankage for pork production. The soy-bean ration produced the largest daily gains, and this with the smallest quantity of feed consumed for each pound of grain.

The soy bean does not require a well-drained soil for its best development, although it will not succeed where water stands for any considerable length of time. Swamp and peat soils, after being drained and limed, have usually been found to produce this crop very well. Soy beans will thrive on soils that are too acid for the successful culture of red clover.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

How Farmers Have Planted Wheat.

A representative of the Office of Farm Management, Department of Agriculture, recently returned from an inspection of the typical parts of the winter-wheat area of the United States, reports that in Kansas, Oklahoma, and Colorado the soil generally was in excellent condition for the fall sowing, and farmers were doing their best to get in as much land as they could prepare. To offset shortage of labor, due to the draft, farmers were hurrying the sowing of wheat before their boys had to leave. In some of the dryer portions of Kansas, where there had been two successive failures of wheat, farmers were finding it hard to put in a full crop on account of lack of seed. In these places, however, the difficulty was being largely overcome by Government loans for buying seed. In the winter-wheat sections of Oregon, Washington, and Idaho the summer had been exceptionally dry, and up to October 5 there had not been sufficient rains in many places to make it safe to sow wheat. Some farmers, however, were taking a greater risk than usual by sowing the wheat, which ought to be in the ground at about this time.

"Every Patch a War-Savings Stamp."

To arouse interest in clothing conservation, an Oregon home demonstration agent held an exhibit of remodeled garments, which had been loaned to her by the school of home economics of the agricultural college. Following this exhibit, the women called on her by phone for pointers and suggestions and brought their materials and problems to her office, having overcome their hesitancy to let their neighbors know they are patching up their old clothes. Records have been kept of the cost of remodeling the garments and an estimate made of money saved and war textiles conserved.

Entomologists Prepare for War Service.

Because of the possible need of a large number of entomologists for service in the Army as entomological sanitarians, especially in connection with the "cootie" problem, a class in the entomology of disease, hygiene, and sanitation meets regularly in the Bureau of Entomology of the Department of Agriculture in Washington. The proceedings of this class have been mimeographed and sent throughout the country to entomologists who have enrolled. In this way knowledge of the control of disease-carrying insects has been greatly increased among entomologists, making them better equipped to render such service as the War Department may call for.

Raise Horses of Better Quality.

Large numbers of undesirable, mediocre horses are being turned onto the market at present in all parts of the country in order to save feed, according to reports to the United States Department of Agriculture. As a consequence the market is glutted with commonplace animals of this description to the extent that the prices paid are unusually low. The department urges farmers to raise horses of better breeding and quality. The supply of desirable-quality heavy draft horses or animals suitable for artillery or cavalry purposes is below the demand, while the prices of such animals are correspondingly high. In view of both the domestic and foreign demand during and after the war for quality horses, farmers should begin now to stock up their barns with horseflesh of the desirable type. Under existing conditions feeding stuffs for work animals are extremely high in price. On this account it is imperative that the farmer should winter only work stock of the useful, most efficient, and valuable type. One heavy draft horse will perform the work of practically two undersized, inferior plugs, while such an animal can be fed at about the same cost for maintenance as for one of the plugs. When the farmer desires to sell a heavy horse of quality and breeding he can always locate a ready market, whereas inferior animals ordinarily can be disposed of only at a sacrifice.

How Dangerous Insects Are Watched.

The extent to which the principal crops of this country are attacked by injurious insects is known almost from day to day for the entire United States by the Department of Agriculture's Bureau of Entomology through its "war emergency entomological intelligence service." Cooperative arrangements have been made with the entomologists of the State agricultural colleges and experiment stations, teachers of entomology in other colleges and universities, Forest Service field workers, county agents, extension service field employees, and all other available observers by which undue increase of any insect pest is immediately reported to the bureau. In this way knowledge of prospective outbreak is centralized and then distributed to bring about prompt and efficacious treatment. The information thus brought together is issued monthly to the economic entomologists of the country.

Collecting Forest Range Plants.

More than 35,000 plant specimens, representing 4,800 species, have been collected on national forests and purchase areas by Forest Service officers in connection with the extensive studies made of the distribution, natural habits, and economic importance of the range flora. The data obtained have direct application to many phases of range management, such as intensive range utilization, especially with a view to minimum interference with the requirements of the important forage plants and the utilization of each type at the time and by the class of stock to which it is best adapted. Use of these data is also made in the detection, eradication, and fencing of poisonous plant areas, in natural range reseeding, and other range studies.

United States to Buy Beef for Quality.

At a conference attended by Secretary Daniels of the Navy, Secretary Houston of the Department of Agriculture, Mr. Hoover of the Food Administration, and representatives of the Quartermaster General of the Army and of the Paymaster General of the Navy, a unanimous agreement was reached that all future purchases of beef for our Army, Navy, and Marine Corps and fighting forces of the allies shall be made on a basis of quality, irrespective of weight. The representatives of the other departments agreed that the Department of Agriculture should select the meats on the basis of quality through its inspectors at the purchasing markets.

The arrangement effected will protect the fighting forces in the matter of quality of meats and at the same time will bring about a better balanced condition in the live-stock industry. This course of action is in accordance with sound prin-

ciples of production and conservation which have been advocated by the Department of Agriculture, the Food Administration, and the other departments, with a view to an assurance of an adequate supply of beef for the future.

Many Rodents Killed in Montana.

Rodent-control work in Montana during the past season has saved $2,760,000 worth of farm crops at a cost of $82,800, according to the report of the Montana extension specialist in rodent control. The Bureau of Biological Survey, which cooperates with the State agencies, furnished trained leadership and contributed $12,000 from its emergency appropriation toward the cost, and Montana farmers paid the remaining $70,800. Work was carried on in 25 counties, and 276 tons of poisoned oats were prepared in accordance with the Bureau of Biological Survey formula. Great numbers of ground squirrels and prairie-dogs were destroyed. The increasing demand for the work, according to the report of the State specialist, has secured it a prominent place on the programs of work of the county agents and has made easy the introduction of other lines of agricultural improvement work.

Sell Flowers and Vegetables for French Wounded.

During the summer months several Virginia garden clubs have sold flowers, fruits, and other produce, and contributed their profits to the American Fund for the French Wounded. A hall in the local market building was hired in one town and the different members have alternated in selling from it. A small curb market was utilized in another place. In each nearly all of the products were donated, but sometimes half of the price has been returned to the donor and the rest kept for the fund. The home demonstration agent has had the planning and general oversight.

Exhibits Drawing Big Crowds.

Reports from five circuits of State fairs and other large expositions at which the United States Government exhibits are being shown tell of large crowds and great interest in the displays, which are made up from material contributed by the Departments of War, Navy, Interior, Commerce, and Agriculture, the Food Administration, and the Committee on Public Information. The influenza epidemic in recent weeks has interfered with some itineraries, but, on the whole, the exhibits are thought to have performed effective war-time work by awakening and directing interest in governmental activities, civil as well as military. F. Lamson-Scribner, of the Department of Agriculture, is chairman of the Joint Committee on Government Exhibits, which includes representatives from all departments cooperating.

Investigates Seed Exports.

The seed-reporting service of the Bureau of Markets frequently is called upon to advice the War Trade Board relative to the granting of licenses for the export of vegetable seeds. In order that this might be done intelligently and expeditiously, it seemed desirable at this time to ascertain facts as to the kinds and total quantities of vegetable seeds for which export licenses are desired. These facts will be considered in connection with information as to the available supplies and probable consumption, and can be used as a basis for advising the War Trade Board relative to granting export licenses. With this end in view an inquiry has been made by the seed-reporting service as to the exports of vegetable seeds to Canada, our other allies, and neutral countries.

Complete figures have not yet been compiled from this inquiry, but it may be said that a large increase in exports over 1917 is contemplated this year by a number of concerns. This increase amounts in certain cases to five or six times the amount exported in 1917.

Made-at-Home Labor-Saving Devices.

In 11 communities of one county in Oregon the women are making homemade driers, homemade fireless cookers, and homemade iceless refrigerators under the direction of the home demonstration agent. In connection with this project one woman found that an investment of 50 cents in a dish drainer and a wire dishcloth for pots and pans saved her 10 minutes of the time required to do the dishes after each meal, or 30 minutes a day. In a year she figured this time, if accumulated, would give two weeks, of 12 hours a day, leisure. Was the investment worth while?

Colored Church Buys Canner.

Successful canning work has been done in a colored community in Virginia the past summer through the foresight of its minister. Impressed by the home demonstration agent's talks on the value of canning the surplus products of the garden, this up-to-date leader of a colored church decided to invest in a large hot-water canner and 4,000 cans for a start. His plan as it was carried out was not to do commercial work but to get the people of his church to save enough for themselves this winter. His daughter has had charge of it, and the members of the congregation have brought their fruit and vegetables to his house and canned there under supervision, saving money for themselves and canned goods for the soldiers.

HELP WIN THE WAR!

Get Behind the Country's Agricultural War Program—

The U. S. Department of Agriculture; the State Agricultural College; the County Farm Bureaus.

Fireless Cookers That Are Safe.

Recently the National Board of Fire Underwriters issued a caution against using wooden pails or tubs to make homemade fireless cookers. To eliminate the danger of fires from these valuable fuel savers, the Department of Agriculture advocates using ground-up asbestos in place of hay, paper, or wool for packing in them. Additional safety may be attained by making the cooker from a tin can.

South to Raise More Broom Corn.

Replies to an inquiry in reference to broom-corn production recently sent out by the States Relations Service of the Department of Agriculture have been very encouraging. Florida, Mississippi, Tennessee, Louisiana, Alabama—in fact, the majority of the Southern States—give promise of decided future activity in the raising of this crop, which, at the present excessively high price of brooms, is quite remunerative. In November, at the conference of representatives from the various boys' and girls' clubs of the South in Washington, increased cultivation will be emphasized and encouraged. At this meeting also it is planned to have a boy broom maker from a near-by State demonstrate the simplicity of "home" broom making and give actual figures on the low cost of turning out the finished product.

AVERAGE YIELDS OF SOY BEANS

The average yields of soy-bean seed to the acre in various sections of the United States range from about 15 bushels in the Northern States to about 25 bushels in the northern part of the cotton belt. The average yield in eastern North Carolina, the largest seed-producing section in the country, is about 25 bushels, although many fields produce 35 bushels or more to the acre. Maximum yields of 50 bushels to the acre have been reported from North Carolina and Tennessee.

Table Shows Open Seasons for Migratory Game Birds Throughout the United States

The open seasons here shown are inclusive of both dates. When the season is closed for a fixed period the date terminating the closed season is given.

The county seasons of North Carolina may be had on application to the Secretary, Audubon Society, Raleigh, N. C. Local exceptions in Tennessee and Virginia are published in "Game Laws for 1918," just issued.

The term rabbit includes "hare;" quail, the bird known as "partridge" in the South; grouse includes Canada grouse, sharp-tailed grouse, ruffed grouse (known as "partridge" in the North and "pheasant" on the South), and all other members of the family except prairie chickens, ptarmigan, and sage hens; introduced pheasant is restricted to the Old World pheasants.

Persons are advised to secure from State game commissioners full text of game laws in States where hunting is contemplated, as provisions of minor importance are omitted from this table. "Game Laws for 1918," and a directory of game officials may be had free on application to the Secretary of Agriculture, Washington, D. C.

State.	MIGRATORY GAME BIRDS. (The seasons here shown are the times when migratory game birds may be hunted without violating either Federal regulations or State laws.)					
	Ducks, Geese, Brant, Coot, Gallinules.	Black-bellied and Golden Plovers, and Yellowlegs.	Wilson Snipe or Jacksnipe.	Woodcock.	Rails.	Dove.
Ala	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	Sept. 16-Dec. 31.
Alaska	Sept. 1-Dec. 15.	Sept. 1-Dec. 15.	Sept. 1-Dec. 15.			Sept. 1-Dec. 15.
Ariz	Oct. 16-Jan. 31.	Oct. 15-Dec. 15.	Oct. 16-Jan. 31.		Oct. 15-Nov. 15	Do.
Ark	Nov. 1-Jan. 31.	Sept. 1-Dec. 15.	Nov. 1-Jan. 31.	Jan. 1, 1922	Sept. 1-Nov. 30	No open season.
Cal	Oct. 16-Jan. 31.	No open season	Oct. 16-Jan. 31.		No open season	Sept. 1-Nov. 30[1]
Colo	Sept. 16-Dec. 31	Sept. 16-Dec. 31	Sept. 16-Dec. 31		Sept. 16-Nov. 30	No open season.
Conn	Oct. 1-Jan 15[1].	Sept. 1-Nov. 30	Oct. 1-Nov. 30.	Oct. 8-Nov. 23.	Sept. 12-Nov. 30	Do.
Del	Oct. 16-Jan. 31.	Aug. 16-Nov. 30	Oct. 16-Jan. 31.	Nov. 15-Dec. 31	Sept. 1-Oct. 31.	Nov. 15-Dec. 15[1]
D. C	Nov. 1-Jan. 31.	Sept. 1-Nov. 30	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	No open season.
Fla	Nov. 20-Jan. 31	Nov. 20-Jan. 31	Nov. 20-Jan. 31	do	Nov. 20-Nov. 30	Nov. 20-Dec. 31.
Ga	Nov. 1-Jan. 31.	do	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	Do.
Idaho	Sept. 16-Dec. 31	Sept. 16-Dec. 31	Sept. 16-Dec. 31		do	Sept. 1-Sept. 30.
Ill	Sept. 16-Dec. 15	Sept. 16-Dec. 15	Sept. 16-Dec. 15	July 1, 1920	Sept. 1, 1920	No open season.
Ind	Sept. 16-Dec. 31[1]	Sept. 16-Dec. 20	Sept. 16-Dec. 20	Oct. 1-Nov. 30.	Sept. 1-Nov. 30	Do.
Iowa	Sept. 16-Dec. 31	Sept. 16-Dec. 31	Sept. 16-Dec. 31	do	do	Do.
Kans	do	do	do	do	do	Do.
Ky	do	do	do	No open season	do	Sept. 1-Oct. 15.
La	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	do	Nov. 1-Jan. 31.	Sept. 16-Dec. 31.
Me	Sept. 16-Dec. 31	Aug. 16-Nov. 30	Sept. 16-Dec. 31	Oct. 1-Nov. 30.	Sept. 1-Nov. 30.	No open season.
Md	Nov. 1-Jan. 31.	do	Nov. 1-Jan. 31.	Nov. 10-Dec. 24[1]	Sept. 1-Nov. 1.	Sept. 1-Dec. 15.
Mass	Sept. 16-Dec. 31	do	Sept. 16-Dec. 31	Nov. 1-Nov. 30[1]	Sept. 1-Nov. 30	No open season.
Mich	do	Sept. 16-Dec. 15	do	Oct. 1-Nov. 9.	No open season	Do.
Minn	Sept. 16-Nov. 30.	Sept. 16-30[1]	Sept. 16-30	Sept. 16, 1920	Sept 16-Nov. 30	Do.
Miss	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	Sept. 16-Dec. 31.
Mo	Sept. 16-Dec. 31	Sept. 16-Dec. 31	Sept. 16-Dec. 31	No open season	Sept. 15-Nov. 30	Sept. 1-Nov. 10.
Mont	Sept. 16-Nov. 30[1]	do	do		Sept. 1-Nov. 30	No open season.
Nebr	Sept. 16-Dec. 31	do[1]	do	No open season	do	Do.
Nev	do	do	do		do	Sept. 1-Dec. 15.[1]
N. H	do	Aug. 16-Nov. 30	do	Oct. 1-Nov. 30	do	No open season.
N. J	Oct. 16-Jan. 31.	do	Oct. 16-Dec. 31	Oct. 10-Nov. 30	do	Do.
N. Mex	do	Sept. 1-Dec. 15	Oct. 16-Jan. 31.		do	Sept. 1-Sept. 30.
N. Y	Sept 16-Dec. 31	Sept. 16-Nov. 30	Sept. 16-Nov. 30	Oct. 1-Nov. 15.	Sept. 16-Nov. 30	No open season.
Long Island	Oct. 16-Jan. 15[1]	Aug. 16-Nov. 30	Oct. 16-Nov. 30	Oct. 15-Nov. 30	do	Do.
N. C.	Nov. 1-Jan. 31.	Sept. 1-Dec. 15	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	Sept. 16-Dec. 31.
N. Dak	Sept. 16-Dec. 1[1]	Sept. 16-Oct. 16	Sept. 16-Oct. 16	Oct. 1-Oct. 16.	do	No open season.
Ohio	Sept. 16-Dec. 15[1]	Sept. 16-Dec. 15	Sept. 16-Dec. 15	Oct. 1-Nov. 30.	do	Do.
Okla	Oct. 16-Jan. 31.	Sept. 1-Dec. 15	Oct. 16-Jan. 31.	Nov. 1-Dec. 31.	do	Sept. 1-Dec. 15.
Oreg.:						
East	Oct. 1-Dec. 31[1]	Oct. 1-Dec. 31[1]	Oct. 1-Dec. 31[1]		Oct. 1-Nov. 30.	Sept. 1-Oct. 31.[1]
West	Oct. 1-Jan. 15.	Oct. 1-Jan. 15.	Oct. 1-Jan. 15.		do	Sept. 1-Oct. 31.
Pa	Sept. 16-Dec. 31[1]	Sept. 16-Nov. 30	Sept. 16-Nov. 30	Oct. 20-Nov. 30	Sept. 1-Nov. 30	No open season.
R. I	Oct. 1-Jan. 15.	Aug. 16-Nov. 30	Oct. 1-Nov. 30.	Nov. 1-Nov. 30.	do	Do.
S. C	Nov. 1-Jan. 31.	Sept. 1-Dec. 15.	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	do	Sept. 16-Dec. 31[1]
S. Dak	Sept. 16-Dec. 20	Sept. 16-Oct. 6.	Sept. 16-Dec. 20	Oct. 1-Nov. 30.	Sept. 7-Nov. 30	No open season.
Tenn	Nov. 1-Jan. 31.	Sept. 1-Dec. 15	Nov. 1-Jan. 31.	No open season	Sept. 1-Nov. 30	Sept. 1-Dec. 15.
Tex	Oct. 16-Jan. 31.	Nov. 1-Jan. 31.	Oct. 16-Jan. 31.	Nov. 1-Dec. 31.	do	Sept. 1-Oct. 31.[1]
Utah	Oct. 1-Dec. 31[1]	No open season	Oct. 1-Dec. 31		do	No open season.
Vt	Sept. 16-Dec. 31	Sept. 16-Nov. 30	Sept. 16-Nov. 30	Oct. 1-Nov. 30.	No open season	Do.
Va	Nov. 1-Jan. 31.	Aug. 16-Nov. 30	Nov. 1-Jan. 31.	Nov. 1-Dec. 31.	Sept. 1-Nov. 30	Sept. 1-Dec. 15.
Wash.:						
East	Sept. 16-Dec. 31[1]	Oct. 1-Dec. 15.	Oct. 1-Dec. 15.		Sept. 16-Nov. 30	No open season.
West	Oct. 1-Jan. 15.	do	do		Oct. 1-Nov. 30.	Do.
W. Va	Oct. 1-Dec. 31[1].	Sept. 16-Dec. 15	Oct. 15-Dec. 15	Oct. 1-Nov. 30.	Sept. 1-Nov. 30	Do.
Wis	Sept. 16-Dec. 16[1]	Sept. 16-Dec. 20	Sept. 16-Dec. 20	No open season	Sept. 7-Nov. 30	Do.
Wyo	Sept. 16-Dec. 16	Sept. 16-Dec. 16	Sept. 16-Dec. 16		Sept. 1-Nov. 30	Do.

[1] Exceptions and provisions given in "Game Laws for 1918."

MORE DRAFT ADVISERS ARE NAMED TO PRESENT NEEDS FOR FARM HELP

Agricultural draft advisers named by the Department of Agriculture and not noted in preceding issues of the Weekly News Letter follow:

Minnesota.

J. S. Jones, University Farm, St. Paul, Minn., agricultural adviser to district board, division No. 1; headquarters, Federal Building, Mankato, Minn.

F. A. Cornea, county agent, Hennepin County, Minneapolis, Minn., agricultural adviser to district board, division No. 2; headquarters, 201 Federal Office Building, Minneapolis, Minn.

H. R. Leonard, University Farm, St. Paul, Minn., agricultural adviser to district board, division No. 3; headquarters, fourth floor, Federal Building, St. Paul, Minn.

A. B. Hofstetter, Duluth, Minn., agricultural adviser to district board, division No. 4; headquarters, Federal Building, Duluth, Minn.

New York.

E. V. Titus, Glen Cove, N. Y., agricultural adviser to eastern district board; headquarters, Nassau Trust Co. Building, Mineola, N. Y.

C. M. Watkins, Penn Yan, N. Y., agricultural adviser to western district board, division No. 1; headquarters, Glen Springs Hotel, Watkins, N. Y.

George W. Dunn, Webster, N. Y., agricultural adviser to Western district board, division No. 2; headquarters, county courthouse, Rochester, N. Y.

Charles Parker, Lockport, N. Y., agricultural adviser to western district board, division No. 3; headquarters, 804 Iroquois Building, Buffalo, N. Y.

O. S. Morgan, Columbia University, New York City, agricultural adviser to New York City district board, headquarters, room 323 Federal Building, New York, N. Y.

Earl Laidlaw, Gouverneur, N. Y., agricultural adviser to northern district board, division No. 1, headquarters, Malone, N. Y.

A. W. Brown, West Winfield, N. Y., agricultural adviser to northern district board, division No. 2; headquarters, county courthouse, Albany, N. Y.

H. A. Adams, Manlius, N. Y., agricultural adviser to northern district board, division No. 3; headquarters, 311 county courthouse, Syracuse, N. Y.

Enos Lee, Yorktown, N. Y., agricultural adviser to southern district board, headquarters, room 200, courthouse, White Plains, N. Y.

The agricultural advisers are not to be members of the district boards, but are to furnish to the boards facts relative to farm labor requirements, not only of their own districts, but of the entire country. Such information will be supplied to the advisers by the Department of Agriculture. The advisers also may concern themselves with individual cases before the district board. County agents of the Department of Agriculture have been supplied with questionnaires to be sent out for the purpose of securing facts about the farm labor needs in the counties.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI NOVEMBER 6, 1918 No. 14

DEPARTMENT FAVORS DRAWING POTASH FROM HOME SOURCES

Would Encourage Domestic Development to Supply Fertilizer Need

Conference Brings Out Views of Interests Involved. Many Crops Are "Hungry" For Plant Food Formerly Largely Imported

At a conference on the American potash situation, held October 15 in the office of William Wallace Mein, assistant to the Secretary of Agriculture, in charge of fertilizer control, it was stated that the view of the Department of Agriculture is that the Government should do all that is possible to encourage the production of potash from the cheapest sources in this country, in order to enable farmers to obtain it at a low rate, because foreign supplies are now unavailable.

Some Promising Sources

Some of the domestic sources of potash that may be further developed are blast furnaces, from the fumes of which potash-bearing materials may be precipitated; cement mills, greensand, certain shales, the brine of some lakes, mostly in Nebraska, and the giant seaweed (kelp) of the Pacific Coast.

The domestic production of potash for the coming year is expected to be about 60,000 tons, much more than the previous year, but still only about one-fourth of the annual prewar consumption, according to A. W. Stockett, of the Bureau of Mines.

Many Crops Need Potash

Representatives of the Bureau of Plant Industry of the Department of Agriculture pointed out that certain crops in the East are showing unmistakable signs of "potash hunger," and the general agreement at the meeting was that farmers should be informed of facts bearing on the value of potash for crop production, and that all efforts should be made to supply the farmers' demand.

The purpose of the meeting was to promote free discussion among the different interests involved in connection with the potash situation. R. C. Warriner, special assistant in fertilizer control, presided. Others who took part in the conference were: Charles H. McDowell, of the War Industries Board; Dr. Oswald Schreiner, W. A. Orton, and H. A. Edson, of the Bureau of Plant Industry; Dr. A. C. True, Bradford Knapp, and C. B. Smith, of the States Relations Service; F. H. Brown, A. R. Merz, and J. W. Turrentine, of the Bureau of Soils; A. W. Stockett, of the Bureau of Mines; W. D. Huntington, of the Davison Chemical Company, and Frederick Rayfield, of Swift & Co., representing the Chemical Alliance; George A. Lee and T. E. Stevens, representing the Nebraska potash producers, and E. A. Goldenweiser, statistician in fertilizer control.

GENERAL PERSHING TO AMERICAN FARMERS.

This message of appreciation from General Pershing to American farmers was received by Carl Vrooman, Assistant Secretary of Agriculture, who is now in France with a committee of American agricultural representatives:

American Expeditionary Forces,
Office of the Commander in Chief, France,
October 16, 1918.

Honorable Carl Vrooman,
Assistant Secretary of Agriculture.

Dear Mr. Vrooman:—Will you please convey to farmers of America our profound appreciation of their patriotic services to the country and to the allied armies in the field. They have furnished their full quota of fighting men; they have bought largely of Liberty Bonds; and they have increased their production of food crops both last year and this by over a thousand million bushels above normal production. Food is of vital military necessity for us and for our allies, and from the day of our entry into the war America's armies of food producers have rendered invaluable service to the allied cause by supporting the soldiers at the front through their devoted and splendidly successful work in the fields and furrows at home.

Very sincerely, John J. Pershing.

HORSE "FLU" ANOTHER KIND; HOW TO TREAT THIS DISEASE

Equine Ailment Resembles Human Affliction in Several Important Particulars

Now Under Good Control, But Federal Authorities Advise Precautions To Prevent Outbreak—Cause Thought To Be Unknown Germ

Although the serious epidemic of influenza now affecting the human family has no relation to the disease of the same name which affects horses, specialists of the United States Department of Agriculture point out a resemblance of symptoms and course of the disease in each instance.

According to the department, influenza among horses at the present time is under better control in all sections of the country than ever before. This results almost entirely from the work of the Federal authorities in combating the pest.

Equine influenza is a common disease in the large cities of the country, affecting horses which pass through infected stables of dealers. Only, however, under certain influences not understood and when large numbers of horses in commercial channels are exposed to contagion, does it assume an enzootic or epizootic form. Unlike certain other infectious diseases, one attack of influenza does not grant a lasting immunity. However, previous attack or attacks or other unassignable reasons apparently make old horses less susceptible than young ones.

An Old Disease of Horses

History indicates that this disease has been recognized in various outbreaks for several hundred years past. Even before the Christian Era, a severe epizootic believed to be influenza, is recorded as having occurred in Sicily, and again in A. D. 1301 it spread over a considerable portion of Italy, causing great loss among the war horses of Rome. In 1648 the disease affected Germany and spread to other parts of Europe, and in 1711 it followed

the tracks of the great armies all over Europe, causing immense losses among the horses. Other extensive outbreaks obtained at intervals from 1813 to 1883, one of which was that of 1870–73, in connection with the Franco-Prussian War. The first recorded appearance of equine influenza in North America was in 1766. Probably the most severe outbreak, however, was that of 1870–72, when it spread over the entire country from Canada, south to Ohio, and then eastward to the Atlantic coast and westward to California, although the severity of the outbreak of 1900–01 should not be overlooked. In these epizootics, there was a heavy loss of horses, and being prior to introduction of the motor truck in city commerce, business in the great commercial centers of the country was seriously inconvenienced, and in some cases practically suspended for lack of available horses.

Like the influenza epidemics in the human family, epizootics of equine influenza are difficult to control. The true primary cause of the disease has not been established, though it is generally believed to be due to a specific germ, too small to be detected under the highest power microscope. It certainly has the characteristic of extreme diffusibility, leading to spread of disease over a large area of the country in a few days, the outbreak running its course despite all efforts to prevent it, and the infection gradually subsiding without assignable cause.

Symptoms of the Malady

The symptoms are those of fever, in some cases, preceded by a chill. There is great prostration and depression of muscular force; the visible mucous membranes, especially those of the eye, become a deep saffron, ocher, or violet red color, from which fact the term "pinkeye" has been given the disease. There is a great diminution or total loss of appetite and a rapid loss of flesh, which frequently reaches 30 to 75 pounds for each 24 hours. In uncomplicated cases, the fever abates after 6 to 10 days, and there is a general restoration to health. The death rate is relatively low (during the epidemic of 1872 varying from 2 to 7 per cent), the higher rate occurring among city horses. The complications are many and some times serious. Among such are those of the intestines and lungs. Pneumonia, one of the frequent complications, is always serious, as it affects the animal when reduced in strength and resisting power.

WHEN HORSES GET THE "FLU."

To guard against an unfavorable termination or the development of one of its numerous complications, horses upon showing evidences of influenza should be relieved immediately from work. Most careful nursing is also essential for horses affected with influenza and, likewise, skilled medical treatment, which can be best assured by placing affected animals under the care of a qualified veterinarian. The spread of the infection should be prevented by segregating the diseased animals and thoroughly cleaning and disinfecting the contaminated premises. Plenty of sunlight and good ventilation are also highly desirable.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination on December 4 and 5, 1918, for the positions of assistant in preservation of fruits and vegetables in transit and storage, grade 2 (male and female), $1,200–$1,800; assistant in preservation of meats in transit and storage, grade 2 (male and female), $1,200–$1,800; and assistant in preservation of poultry and eggs in transit and storage, grade 2 (male and female), $1,200–$1,800. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., will be filled from this examination.

Assistant in marketing, grade 2, for both men and women, on December 4 and 5, 1918, to fill vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field, at salaries ranging from $1,200 to $1,800 a year.

Applicants for the above examinations should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Pathologist in cereal disease investigations, for men only on November 26, 1918. Four vacancies in the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., at entrance salaries ranging from $2,500 to $3,000 a year.

Biological assistant, for men only. Five or more vacancies in the Bureau of Biological Survey, Department of Agriculture, for duty in the field at entrance salaries ranging from $900 to $1,200 a year. Date of examination, November 26, 1918.

Applicants for the above examinations should apply for Form 2118, stating the title of the examination desired to the Civil Service Commission, Washington, D. C.

The Missouri station in a comparative feeding trial of soy-bean meal with linseed meal and tankage showed that these feeds were equally effective in promoting the growth of young hogs.

OCTOBER SURVEY SEES WHEAT AGAIN TRIPLE FIGURES OF 1917

Stocks Reported Total 195,997,839 Bushels, Against September's 114,331,842

Corn Also Shows Big Gain, With Increases in Oats, Barley and Rye, Wheat, and Other Flours—Other Food Commodities

According to a food survey by the Department of Agriculture dated October 1, 1918, the commercial stocks of wheat reported for that date amounted to 195,997,839 bushels as against 114,331,842 bushels reported on hand in a similar survey for September 1. These figures refer to stocks actually reported and do not represent the total commercial stocks of the country, nor do they include stocks on farms. The stocks reported for October 1 were held by 12 979 firms, consisting of elevators, warehouses, grain mills, and wholesale dealers. These holdings, like those of September 1, 1918, were nearly three times as large as the stocks held by the same firms a year earlier, the actual percentage for October 1 being 297.6 per cent of the 1917 stocks.

Visible Supply Figures Compared

The commercial visible supply figures as published by the Chicago Board of Trade for the nearest date, September 28, show 90,623,000 bushels of wheat as against 7,789,000 a year ago, and the corresponding Bradstreet figures for 1918 show 98,155,000 bushels as against 13,072,000 bushels for 1917. A very great relative increase in the commercial stocks of wheat on October 1, this year, as compared with the same date last year, is shown by these figures as well as by the results of the more extensive survey.

Other Cereals, Flour, and Corn Meal

The commercial stocks of other cereals reported for October 1, 1918, according to the department statement, were as follows: Corn, 21,119,078 bushels; oats, 85,391,911 bushels; barley, 27,560,565 bushels; and rye, 9 679,069 bushels. The stocks represent the following percentages of the corresponding stocks on October 1, 1917: Corn, 275.4 per cent; oats, 127.7 per cent; barley, 112.7 per cent; and rye, 152.7 per cent.

The commercial stocks of flour and corn meal as reported for the survey were: Wheat flour, white, 5,466,423 barrels; whole wheat and graham flour, 88,372 barrels; barley flour, 148,599 barrels; rye flour, 310 285 barrels; corn flour, 40,097,525 pounds; corn meal, 77,770,538 pounds; buckwheat flour, 2,463,605 pounds; mixed flour, 16,407,492 pounds.

These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 131 per cent; whole wheat and graham flour, 155.9 per cent; rye flour, 237.1 per cent; corn flour, 985.2 per cent; buckwheat flour, 106.9 per cent; mixed flour, 176 per cent.

Stocks of Selected Commodities

Elevators, warehouses, and wholesale dealers reported stocks of beans amounting to 8,977,075 bushels, while wholesale grocers and warehouses reported the following commodities in the amounts indicated: Rice, 42,052,065 pounds; rolled oats, 67,458,964 pounds; canned salmon, 89,902,669 pounds; canned tomatoes, 125,568,452 pounds; canned corn, 35,265,824 pounds; sugar, 238,024,813 pounds. These stocks represent the following percentages of the corresponding stocks on hand October 1, 1917: Beans, 109.3 per cent; rice, 37.7 per cent; rolled oats, 158.6 per cent; canned salmon, 79 per cent; canned tomatoes, 126 per cent; canned corn, 85.6 per cent; sugar, 105.9 per cent.

Stocks of condensed and evaporated milk were reported by condensaries, cold storages, warehouses, and wholesale grocers, as follows: Condensed milk, 66,477,378 pounds; evaporated milk, 124,941,051 pounds. The holdings of condensed milk reported for October 1, 1918, represented 106.8 per cent of the stocks held by the same firms a year earlier and the holdings of evaporated milk 78.2 per cent.

MARKET SPECIALIST DIES OF INFLUENZA

A. M. Grimes, of the Bureau of Markets, died at Presque Isle, Me., October 18, of pneumonia following Spanish influenza. Mr. Grimes was a graduate of Cornell University of the class of 1915 and had worked on the citrus canker in Dade County, Fla., and in the grape-propagation investigations of the Bureau of Plant Industry before his service with the Bureau of Markets. In the latter bureau he was engaged on problems of transportation and storage of potatoes and eastern grapes. He was a coauthor of the Bureau of Markets bulletin "Loading American Grapes," issued in August, and of the recent bulletin on Lining and Loading Potato Cars.

Stumps occupy valuable land; foster the growth of weeds, since in order to keep the land in their vicinity clean much hard labor is necessary; mar the appearance of otherwise smooth fields, and hence reduce the selling price of a farm; furnish shelter for harmful insects and animals; and prevent the efficient use of modern machinery.

WINTERING IN CELLAR MAKES BEES READY FOR SPRING WORK

Absolutely Necessary Where Average Temperature is Low, Says New Bulletin

Basements Under Dwellings Found Satisfactory, Especially with Furnace Heat—How To Handle Colonies To Encourage Honey Production

In any locality where the average temperature during winter falls below 25° F., cellar wintering of bees is a practicable method of insuring strong, vigorous colonies in the spring, and in localities where the average winter temperature falls below 15° F., cellar wintering is virtually obligatory, says Farmers' Bulletin 1014, soon to be published by the United States Department of Agriculture.

The cellar in which the bees are kept during winter should be well drained, well ventilated, dark, and warm enough so that the temperature within the hives does not fall below 52° F., according to the bulletin. While specially built cellars are desirable where the apiary is large, some of the best bee cellars are those under residences, especially where there is furnace heat.

Weak Colonies Wasteful

It is wasteful to attempt to winter weak colonies, the bulletin states, and it is unwise to attempt it with colonies that are not strong enough to have brood sufficient to fill three or four Langstroth frames two months before the first killing frost. Colonies of proper strength can be obtained by uniting one or more weak colonies before the close of brood rearing. From the end of one honey season to the beginning of the next a good colony will need fully 45 pounds of honey, and if this amount is not present sufficient stores in the form of honey or sirup should be supplied in the fall as needed.

Bees should be put into the cellar after a good flight in late November or earlier in northern localities. If the beekeeper could know exactly when the bees would have the last opportunity for a cleansing flight they could be put in their winter quarters immediately afterwards. Every care should be taken not to jar the hives while they are being carried. If the temperature is sufficiently low (slightly above freezing), there will be no need of closing the entrances of the hive while they are being moved.

Need Little Care in Hive

In the cellar the hives should be placed one on top of the other until they are four high. If the cellar is properly constructed it will need little if any care during the time the bees are inside, and if the bees are in good condition in the fall and have a good supply of stores the loss between honey-gathering seasons need never be more than one-sixth of the total population of the hive.

Further details on the successful wintering of bees can be had from the bulletin, copies of which can be secured free on application to the United States Department of Agriculture, Washington, D. C. Farmers' Bulletin 1012, also soon to be published, contains information on the preparation of bees for outdoor wintering.

MORE DRAFT ADVISERS ARE NAMED TO PRESENT NEEDS FOR FARM HELP

Agricultural draft advisers named by the Department of Agriculture and not noted in preceding issues of the Weekly News Letter follow:

Minnesota

Joseph S. Ball, Crookston, Minn.—Agricultural adviser to a new district draft board formed in Minnesota, with headquarters at Crookston. This appointment is in addition to those for Minnesota already announced by the department.

Missouri

Xenophon Caverno, Canalou, Mo.—Agricultural adviser to district board, Poplar Bluff, Mo.

Paul M. Culver, Cower, Mo.—Agricultural adviser to district board, Kansas City, Mo., with headquarters in Railway Exchange Building.

A. W. Nelson, Bunceton, Mo.—Agricultural adviser to district board, Jefferson City, Mo., with headquarters in Federal Building.

E. L. Newlon, Lewistown, Mo.—Agricultural adviser to district board, Canton, Mo.

D. C. Taylor, Manchester, Mo.—Agricultural adviser to district board, division 1, with headquarters 1323 Boatman's Bank Building, St. Louis, Mo.

North Carolina

C. W. Mitchell, Aulander, N. C.—Agricultural adviser to district board for the eastern district, with headquarters at Goldsboro, N. C.

W. S. Pharr, R. F. D. 1, Charlotte, N. C.—Agricultural adviser to district board for the western district, with headquarters at Statesville, N. C.

Pennsylvania

S. Herbert Starkey (Bustleton Station), Philadelphia, Pa.—Agricultural

adviser to district board, eastern district, division No. 1, with headquarters at 401 Chestnut Street, Philadelphia, Pa.

H. G. McGowan, Reading, Pa.—Agricultural adviser to district board, eastern district, division No. 3, with headquarters at Lehigh County courthouse, Allentown, Pa.

P. W. Baker, Landisville, Pa.—Agricultural adviser to district board, eastern district, division No. 4, with headquarters at courthouse, Lancaster, Pa.

E. S. Bayard, Pittsburgh, Pa.—Agricultural adviser to district board, western district, division No. 1, with headquarters at room 7, Allegheny County courthouse, Pittsburgh, Pa.

W. S. Wise, Meadville, Pa.—Agricultural adviser to district board, western district, division No. 2, with headquarters at Erie, Pa.

Joseph O. Thomas, Wilmore, Pa.—Agricultural adviser to district board, western district, division No. 3, with headquarters at courthouse, Greensburg, Pa.

E. Dana Sutliff, Bloomingdale, Pa.—Agricultural adviser to district board, middle district, division No. 1, with headquarters at Federal Building, Scranton, Pa.

Albert S. Sheuk, Hershey, Pa.—Agricultural adviser to district board, middle district, division No. 2, with headquarters at House caucus room, State Capitol, Harrisburg, Pa.

Rhode Island

John S. Murdock, Benigan Building, Providence, R. I.—Agricultural adviser to district board, division No. 1, Providence, R. I.

Henry A. Turner, Greenville, R. I.—Agricultural adviser to district board, division No. 2, with headquarters in state house, Providence, R. I.

Wisconsin.

Nat J. Swan, Wauwatosa, Wis.—Agricultural adviser to district board, eastern district, division No. 1, with headquarters at Milwaukee, Wis.

Frank H. Johnson, Darien, Wis.—Agricultural adviser to district board, eastern district, division No. 2, with headquarters at Racine, Wis.

W. B. Bussey, Omro, Wis.—Agricultural adviser to district board, eastern district, division No. 3, with headquarters at Oshkosh, Wis.

C. O. Rustey, Blue Mounds, Wis.—Agricultural adviser to district board, western district, division No. 1, with headquarters at Madison, Wis.

E. C. Jacobs, Elk Mound, Wis.—Agricultural adviser to district board, western district, division No. 2, with headquarters at Eau Claire, Wis.

The agricultural advisers are not to be members of the district boards but are to furnish to the boards facts relative to farm labor requirements, not only of their own districts, but of the entire country. Such information will be supplied to the advisers by the Department of Agriculture. The advisers also may concern themselves with individual cases before the district board. County agents of the Department of Agriculture have been supplied with questionnaires to be sent out for the purpose of securing facts about the farm labor needs in the counties.

The soy bean is a very profitable crop when grown for seed, and the seed-growing industry is being developed in many cotton-growing sections and in the southern part of the corn belt. The character of growth, its uniform maturing habit, and its large yield of grain recommend the soy bean for seed production.

It is estimated by the Bureau of Crop Estimates that stock hogs on September 1, 1918, numbered 65,066,000, an increase of 4,848,000 in a year.

The Philippine Islands are steadily gaining in the production of raw sugar. From crops of 345,077 short tons in 1913, and of 408,339 tons in 1914, the crop of 1917 advanced to 425,266 tons.

Prepare Now for Hyacinths and Narcissii When the Ground is White

Now is the time to prepare to have blooming bulbous plants in the house during the winter. Hyacinths and the various narcissii are especially satisfactory for this purpose. These bulbs are likely to be scarce and high this year, but a few for home decoration when the ground is white with snow will repay some expense and effort.

The essentials for growing bulbs indoors are that they shall become thoroughly rooted before the tops are permitted to grow. This is done by planting the bulbs in suitable soil, either in pots or what florists know as "pans," which are shallow pots, or in boxes. The soil should be light, but retentive of moisture. A rich, light, garden soil is excellent. A heavy garden soil may be used if mixed with an equal amount of sand or with equal parts sand and woods earth.

The planted bulbs then are placed in a cool place in the dark for a period of two to six or eight weeks, or even longer if desired. They should be left there until the roots are well started. In the case of bulbs planted in pots the pots may be inverted and gently tapped, when the bulb and soil will come out in a mass. When the bulbs have been sufficiently long in the pots the earth in the bottom of the pot will be completely covered with rootlets. The bulbs should then be brought into a slightly warmer place with some light for three or four days and then gradually brought into greater warmth and full light. During all the period of growth the ground should be kept moist without being water-soaked.

Narcissus takes about five weeks to develop from the time it is brought into full light. Hyacinths take a longer time, and tulips about the same time as hyacinths. The Roman hyacinths come in a little less time, while the paper white narcissus takes only about four weeks. It is hard to hold the paper white narcissus for late winter. Hyacinths are hard to bring into bloom before February. The various forms of the yellow narcissus can be brought into bloom from December until the time for outdoor blooms by starting the bulbs early in the fall and bringing them into the light at intervals of a week or ten days. For the earliest bloom it is desirable to get the bulbs started as soon as the first of October, and all of the bulbs should be planted before the middle of November.

Tulips are difficult to get to flower, but it may be done by February or March by special care and attention. It is best to place the pots or pans in a box and cover the whole pot with at least 2 inches of additional soil or ashes, and leave them there until the bud has pushed clear above the pot, otherwise the bloom will be strangled in attempting to get out of the bulbs.

Instead of placing in the cellar, the pots and boxes containing all these bulbs may be buried in the open ground, the receptacles being covered with at least 4 inches of soil. If the ground is apt to freeze hard, then a heavy coating of manure should be added as soon as the first crust freezes over the bulbs. This layer of manure will prevent their freezing and will permit the bulbs to be removed to the house from time to time as needed.

Hyacinths, paper white narcissus, and especially the Chinese sacred lily are frequently grown in water. Special glasses for these bulbs may be purchased, in which they may be successfully grown, or they may be placed in any attractive dish and supported by pebbles. The water should be kept so that it touches the bottom of the bulb.

Better Sheep Breeding Shown by Extension Worker at County Fairs

That the county fair is a fertile field for carrying on extension work has been demonstrated in the Upper Peninsula of Michigan by Duncan L. McMillan, extension specialist in sheep husbandry of the United States Department of Agriculture, cooperating with the Michigan College of Agriculture. During the recent county fair season Mr. McMillan displayed a novel sheep exhibit, prepared strictly on educational lines, at five local fairs. The object of the display was to demonstrate improved methods in handling and breeding sheep to farmers already in the business, and to stimulate and assist others in getting started properly. It illustrated to beginners the advisability of using western ewes as foundation stock and crossing them with pure-bred rams of the black-faced breeds to build and grade up flocks.

The exhibit was made up of several pens of sheep, including one of western ewes brought in from the range this year, and others of first, second, and third crosses of western ewes and pure-bred rams. One pen of Angora goats was used to demonstrate their brush-clearing ability by placing quantities of brush in such fashion as to make the goats climb for it. Milk goats were also included in the exhibit. The sheep in the exhibit were used for special judging demonstrations and in illustrating the more important points to be considered in selecting breeding stock and culling the flock. Visitors showed keen interest and took advantage of the opportunity to ask questions, which kept the extension men in charge of the exhibit busy explaining various phases of the sheep business.

On the whole, the most important things accomplished seem to be that farmers came to realize the value of the pure-bred sire. Also, they learned to appreciate western ewes as foundation stock and to recognize the error of using the open, coarse-wooled breeds of sheep for this purpose.

PROTECTS WOOLENS FROM CLOTHES MOTH

Experiments by the Bureau of Entomology, United States Department of Agriculture, have demonstrated that naphthalene is uniformly effective in protecting woolens from clothes-moth infestation and in killing all stages of the insect.

A red-cedar chest readily killed all adult moths and showed considerable killing effect upon young larvae. It did not prevent the hatching of eggs, but killed all of the resulting larvae almost immediately.

Red-cedar chips and shavings, while not entirely effective in keeping the adult moths from laying eggs on the flannel treated, appeared to protect it from appreciable damage when used liberally.

Varying results were obtained from experiments with other exterminators of moths. The experiments are described in Bulletin 707, "Results of Experiments with Miscellaneous Substances against Bedbugs, Cockroaches, Clothes Moths, and Carpet Beetles." Copies of the bulletin may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

A ton of sugar cane has produced from 119 to 151 pounds of refined sugar in Louisiana in recent years. The sugar product of a ton of beets has been 210 to 285 pounds.

INSPECTORS WATCH FOR SHIPMENTS OF WORMY OR MOLDY CHESTNUTS

Officials in charge of the enforcement of the Federal food and drugs act have instructed the food inspsectors to look out for interstate shipments of worm-eaten or moldy chestnuts. Several seizures were made upon recommendation of the Department of Agriculture during past seasons because the chestnuts were wormy and unfit for food. A number of the shipments have been destroyed by order of the courts.

Many of the wormy nuts and practically all of the moldy nuts can be readily detected by the eye, so that careful sorting by the shipper at time of making shipment should be done, say the officials. In addition, the nuts should be fumigated with carbon disulphid to destroy the young grubs in nuts, the presence of which can not readily be detected. The following method is based on recommendations of the entomologists of the United States Department of Agriculture.

Put the nuts in a large water-tight barrel. Into a pie pan on top of the nuts pour an ounce of carbon disulphid for each bushel. Cover the barrel immediately with a piece of oilcloth or heavy tarred paper to keep in the fumes. Allow to stand under fumigation for 15 to 24 hours. Remove the nuts from the container; air them thoroughly for about one hour. This fumigation kills any worms which may be present and thus prevents their further growth. It will greatly reduce losses in transportation and storage and will not affect the edibility or appearance of the product.

Caution: Carbon disulphid is very inflammable and can be ignited by a match, lantern, cigar, or pipe.

DO YOU HAVE THESE THINGS WHEN YOU WANT THEM?

Ice cream?

Iced tea, lemonade, and buttermilk?

Ice-cold watermelons and cantaloupes?

Ice for use in sickness?

If you don't, it's your own fault, provided you live in a natural ice region.

All you need is an inexpensive ice house and a pond or stream. The labor comes during the slack winter season.

Write to the United States Department of Agriculture for a bulletin that tells how.

SUMMARY OF GAME LAWS ISSUED

The nineteenth annual summary of Federal game laws and regulations has been issued by the Biological Survey of the United States Department of Agriculture. The objects of the publication are to present the provisions in convenient form for sportsmen and others and to show the general condition and trend of game legislation from year to year.

The provisions relating to seasons, licenses, limits, possessions, sale and export, and a few miscellaneous matters have been compiled and grouped under State and other governments, alphabetically arranged, thereby enabling interested persons to obtain conveniently a brief synopsis of the laws of particular sections.

Undoubtedly many mowing machines have been or are about to be scrapped, though still capable of doing several years of useful work if only a small percentage of their original cost were expended upon them for repairs. The proper time for overhauling these machines is during their period of inactivity and before the rush of spring work.

Rice varieties are changing places in popularity among growers. The Honduras and Louisiana Pearl varieties are losing, and the Blue Rose, Japan, and Early Prolific are gaining, according to the Bureau of Crop Estimates.

Packers to Pay Minimum of $17.50 for November Hogs, Result of Conference

The conference between the Live Stock Subcommittee of the Agricultural Advisory Board, including special members representing the swine industry and the Food Administration, held on October 23 to 25, has, after consideration of the present situation of the pork and hog market, reached the following conclusions:

The entire marketing situation has so changed since the September joint conference as to necessitate an entire alteration in the plans of price stabilization. The current peace talk has alarmed the holders of corn, and there has been a price decline of from 25 cents to 40 cents per bushel. The fact that the accumulations of low-priced corn in Argentina and South Africa would, upon the advent of peace and liberated shipping, become available to the European market has created a great deal of apprehension on the part of corn holders. This decline has spread fear among swine growers that a similar reduction in the prices of hogs would naturally follow. Moreover, the lower range of corn prices would, if incorporated in a 13 to 1 ratio, obviously result in a continuously falling price for live hogs. In view of these changed conditions many swine producers anticipated lower prices, and, as a result, rushed their hogs to market in large numbers, and this overshipment has added to and aggravated the decline.

Big Increase in Receipts.

The information of the Department of Agriculture indicates that the supply of hogs has increased about 8 per cent, while the highest unofficial estimate does not exceed 15 per cent increased production over last year. On the other hand, the arrival of hogs during the last three weeks in the seven great markets has been 27 per cent more than last year during the corresponding period, demonstrating the unusually heavy marketing of the available supply. In the face of the excessive receipts some packers have not maintained the price agreed last month. On the other hand, many of the packers have paid over the price offered to them in an endeavor to maintain the agreed price. The result, in any event, has been a failure to maintain the October price basis determined upon by the September conference and undertaken by the packers. Another factor contributing to the break in prices during the month has been the influenza epidemic; it has sharply curtailed consumption of pork products and temporarily decreased the labor staff of the packers about 25 per cent.

The exports of 130,000,000 pounds of pork products for October, compared with about 52,000,000 pounds in October a year ago, and the export orders placeable by the Food Administration for November amount to 170,000,000, contrasted with the lesser exports of 98,000,000 for November, 1917. The increased demands of the allies are continuing and are in themselves proof of the necessity for the large production for which the Food Administration asked. The increase in export demands appears to be amply sufficient to take up the increase in hog production, but unfavorable market conditions existing in October afford no fair index of the aggregate supply and demand.

Need More Pork After War

It must be evident that the enormous shortage in fats in the Central Empires and neutral countries would immediately upon peace result in additional demands for pork products, which, on top of the heavy shipments to the allies, would tend materially to increase the American exports, inasmuch as no considerable reservoir of supplies exists outside of the United States. It seems probable that the present prospective supplies would be inadequate to meet this world demand with the return to peace. So far as it is possible to interpret this fact, it appears that there should be even a stronger demand for pork products after the war, and, therefore, any alarm of hog producers as to the effect of peace is unwarranted by the outlook.

In the light of these circumstances, it is the conclusion of the conference that attempts to hold the price of hogs to the price of corn may work out to the disadvantage of pork producers. It is the conclusion that any interpretation of the formula should be a broad-gauged policy applied over a long period. It is the opinion of the conference that in substitution of the previous plans of stabilization, the Live Stock Subcommittee of the Agricultural Advisory Board, together with the specially invited swine representatives, should accept the invitation of the Food Administration to join with the Administration and the packers in determining the prices at which controlled export orders are to be placed. This will be regularly done. The influence of these orders will be directed to the maintenance of the common object, namely, the stabilization of the price of live hogs so as to secure as far as it is possible fair returns to the producer and the insurance of an adequate future supply.

These foreign orders are placed upon the basis of cost of hogs to the packers.

Agreement of Packers

As the result of long negotiations between this body and the packers' committee, representing the 45 to 50 packers participating in foreign orders together with the allied buyers, all under the chairmanship of the Food Administration, the following undertaking has been given by the packers:

"In view of the undertakings on the part of the Food Administration with regard to the coordinated purchases of pork products, covered in the attached, it is agreed that the packers participating in these orders will undertake not to purchase hogs for less than the following-agreed minimums for the month of November—that is, a daily minimum of $17.50 per 100 pounds on average of packers' droves, excluding throwouts, 'throwouts' to be defined as pigs under 130 pounds, stags, boars, thin sows, and skips. Further, that no hogs of any kind shall be bought, except throwouts, at less than $16.50 per 100 pounds. The average of packers' droves to be construed as the average of the total sales in the market of all hogs for a given day. All the above to be based on Chicago.

"We agree that a committee shall be appointed by the Food Administration to check the daily operations in the various markets with a view to supervision and demonstration of the carrying out of the above.

Depends on Normal Marketing

"The ability of the packers to carry out this arrangement will depend on there being a normal marketing of hogs, based upon the proportionate increase over the receipts of last year. The increase in production appears to be a maximum of about 15 per cent, and we can handle such an increase.

"If the producers of hogs should, as they have in the past few weeks, prematurely market hogs at such increasing numbers over the above, it is entirely beyond the ability of the packers to maintain these minimums, and therefore we must have the cooperation of the producer himself to maintain these results. It is a physical impossibility for the capacity of the packing houses to handle a similar overflood of hogs and to find a market for the output. The packers are anxious to cooperate with the producers in maintaining a stabilization of price

and to see that producers receive a fair price for their products.

"THOMAS E. WILSON,
"*Chairman Packers' Committee.*"

The plan embodied above was adopted by the conference.

Committee to Supervise Plan

The Food Administrator has appointed a committee, comprising Mr. Thomas E. Wilson, chairman of the packers' committee; Mr. Everett Brown, president of the Chicago Live Stock Exchange; Maj. Roy, of the Food Administration; Mr. Louis D. Hall, of the Bureau of Markets, to undertake the supervision of the execution of the plan in the various markets. Commission men are asked to cooperate in carrying out the plan embodied in the packers' agreement. It must be evident that offers by commission men to sell hogs below the minimum established above is not fair, either to the producer or the participating packers. Mr. Brown has undertaken on behalf of the commission men in the United States that they will loyally support the plan.

It is believed by the conference that this new plan, based as it is upon a positive minimum basis, will bring better results to the producer than average prices for the month. It does not limit top prices and should narrow the margins necessary to country buyers in a more variable market. It is believed that the plan should work out close to $18 average.

Swine producers of the country will contribute to their own interest by not flooding the market, for it must be evident that if an excessive overpercentage of hogs is marketed in any one month, price stabilization and control can not succeed; and it is certain that producers themselves can contribute materially to the efforts of the conferences, if they will do their marketing in as normal a way as possible.

Frankness and Fairness Demanded

The whole situation as existing at present demands a frank and explicit assurance from the conferees represented, namely, that every possible effort will be made to maintain a live-hog price commensurate with swine production costs and reasonable selling values, in execution of the declared policy of the Food Administration to use every agency in its control to secure justice to the farmer.

The stabilization methods adopted for November represent the best efforts of the conference, concurred in by the Food Administration and the Live Stock Subcommittee of the Agricultural Advisory Board, together with special swine members and the representatives of the packers, to improve the present unsatisfactory situation which has unfortunately resulted because of the injection of uncontrollable factors.

We ask the producer to cooperate with us in a most difficult task.

Members of the Conference

The members of the conference were: Food Administration—Herbert Hoover, F. S. Snyder, Maj. E. L. Roy, G. H. Powell; Department of Agriculture—Louis D. Hall, F. R. Marshall; producers—H. C. Stuart, Elk Garden, Va., chairman Agricultural Advisory Board; W. M. McFadden, Chicago, Ill.; A. Sykes, Ida Grove, Iowa; John M. Evvard, Ames, Iowa; J. H. Mercer, Topeka, Kans.; J. G. Brown, Monon, Ind.; E. C. Brown, president Chicago Live Stock Exchange; N. H. Gentry, Sedalia, Mo.; John Grattan, Broomfield, Colo.; Eugene Funk, Bloomington, Ill.; Isaac Lincoln, Aberdeen, S. Dak.; C. W. Hunt, Logan, Iowa; C. E. Yancey; W. R. Dodson; packers—Thomas E. Wilson, F. W. Waddell, G. F. Swift, jr., Robert Mair, Arthur Meeker, J. A. Hawkinson, G. C. Shepard, E. S. Waterbury, L. F. Freeman, F. T. Fuller, T. W. Taliafero, S. Nash, and others.

David E. Lantz Dies; Well Known As Biologist in Service of U. S.

After an illness of a week, Prof. David Ernest Lantz, assistant biologist in the Bureau of Biological Survey, died October 7 of pneumonia at his home in Washington, D. C.

He was born at Thompsontown, Pa., March 1, 1855, and was graduated from the State normal school at Bloomsburg, Pa., with the degree of master of science. In 1878 he removed to Kansas, where he became widely known in educational and scientific circles. He served as superintendent of schools at Manhattan, professor of mathematics in the State agricultural college from 1883 to 1897, principal of the Dickinson County High School, and field agent of the Kansas Agricultural Experiment Station.

Since his appointment in 1904 as assistant biologist in the Bureau of Biological Survey, his time has been occupied mainly in investigating mammals of economic importance. He was particularly active in collecting and applying information in regard to the uses of native mammals, and published reports on deer farming, raising rabbits for food, muskrats for fur, and guinea pigs for use in laboratory work. His work was especially important in relation to food conservation, in developing and applying practical methods to the destruction of animals injurious to agriculture, and stock raising. He spent much time in the field demonstrating methods of preventing the depredations of prairie dogs, pocket gophers, jack rabbits, ground squirrels, and field mice. More recently he devoted his attention with success to the organization of cooperative campaigns to destroy rats.

Prof. Lantz was active in scientific circles. He served as secretary and president of the Kansas Academy of Sciences, of which he was a life member. He was also an honorary life member of the Kansas State Horticultural Society, an associate member of the American Ornithologists' Union, and a member of the Biological Society of Washington.

HEARING ON CORN-MEAL STANDARDS SET FOR WASHINGTON DECEMBER 3

A public hearing to consider the advisability of adopting definitions and standards for corn meal and corn flour will be held by the joint committee on definitions and standards at 10 a. m., December 3, at the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

Products made from both whole corn and degerminated corn will be considered. The committee desires information concerning sterilization and other means of insuring a sound product under market conditions, and suggestions are desired on the rules that should be used in differentiating between sound and spoiled corn meal and corn flour.

All persons interested are invited to attend and present pertinent facts. Those who desire may present their views in writing on or before the date of the hearing to the secretary of the committee, Bureau of Chemistry, Washington, D. C. The hearing will be held at 216 Thirteenth Street SW., Washington, D. C.

The joint committee on definitions and standards is composed of representatives of the United States Department of Agriculture, the Association of American Dairy, Food, and Drug Officials, and the Association of Official Agricultural Chemists.

BEGIN NOW FOR THE SPRING GARDEN.

The home vegetable gardens have been a great success as food producers the past season, despite the fact that most people were late in starting. The planting of a large number of gardens will be even more essential next year if we are to meet the food-production requirements. Now is the time to start your garden oper-

ations for next year by securing the use of a vacant lot, or other land, having it plowed or spaded and well fertilized this autumn so that it will be in shape for planting as early in the next spring as the weather will permit. By getting possession of the land now, all clearing away of stones and other refuse can be done before winter. If the soil is of a clay formation or has a sod upon it, it should be broken up this autumn and allowed to lie exposed to freezing and thawing during the winter months.

As a rule manure can be more easily obtained in the autumn than in the spring, and there is no objection to applying the manure now and allowing it to lie upon the soil during the winter months, working it into the soil when fitting it for planting. If plenty of manure is obtainable a heavy dressing should be turned under and then a second coating of fine manure applied to the surface of the plowed or spaded soil. If the land is broken up this autumn it will be much easier to get in shape for planting next spring. In many sections onions, kale, and spinach can be planted this autumn. A garden will help to feed the family. Make a start this fall.

FEEDING VALUE OF SOY BEANS

The feeding value of soy-bean seed, which contains from 30 to 46 per cent protein, is very high and compares favorably with other concentrated feeds. The growing of soy-bean seed will enable the farmer to produce at a moderate cost at least part of the high-protein concentrates necessary for stock feeding and milk production. When fed to sheep and hogs the beans can be fed whole, but in general it is preferable to crack or grind them. Practical experience has shown that it is necessary to mix the beans with corn or peas first and then grind together into meal. Owing to the high content of protein, soy-bean seed should always be fed in mixture with a less concentrated feed.

Rice varieties are changing in importance in the preference of rice growers in this country. The Honduras variety has lost rapidly and, as a fraction of the total rice crop, has declined from 29 per cent in 1916 to 12 per cent in 1918, according to the Bureau of Crop Estimates. Louisiana Pearl declined from 16 per cent in 1917 to 10 per cent in 1918. On the contrary, the Blue Rose variety was 45 per cent of the total crop in 1916, 43 per cent in 1917, and 48 per cent in 1918; Japan rice gained from 5 per cent in 1916 to 13 per cent in 1918; and Early Prolific from 3 per cent in 1917 to 10 per cent in 1918.

FOOD AND FARMING

Cattle and sheep in Scotland remained practically unchanged in number last June in comparison with June, 1917, according to the agricultural returns, but swine declined 4 per cent on account of diminished feeding stuffs.

About 24 per cent of the entire hay crop is baled, it is estimated by the crop reporters of the Bureau of Crop Estimates. It is expected that 18,600,000 bales of cultivated hay and 2,488,000 bales of wild hay will be baled from this year's crop.

Calculated on the basis of 138 pounds of sugar per ton of cane, the average of the last seven years, the Louisiana sugar crop of this year had a prospect on October 1 of about 267,000 short tons. The average of the last 10 years was 283,116 tons, and of the last 5 years 244,080 tons.

Live-stock reporters of the Bureau of Crop Estimates had on their farms 2.1 per cent less cattle, 2.4 per cent more hogs, and 1.2 per cent less sheep on September 1 than on August 1, 1918. Of the total cattle reported, 51.7 per cent were cows and heifers over 1 year old, 26.2 per cent were steers and bulls, and 22.1 were calves.

The United States exported 14.6 per cent of its wheat crop in the five years preceding the war, 1.7 per cent of the corn, 38.3 per cent of the tobacco, and 69.1 per cent of the cotton. In the three years before the war, this country exported 1.1 per cent of its oats crop, 4.4 per cent of the barley, 2.3 per cent of the rye, and 0.5 per cent of the potatoes.

The average price of a farm horse in the United States, all ages included, declined from $145 in 1910 to $131 in 1916. In 1917 the average price went up to $132, but in 1918 the fall was resumed and the average price became $128. In 1910 the price of a farm horse averaged about 240 per cent higher than the price of a cow; now a horse averages only 50 per cent higher.

Although the average acreage of sugar cane per farm outside of Louisiana is quite small, this crop is so generally grown in some of the southern States that the total acreage for an entire State may be surprisingly large. In Georgia, for instance, the cane patch per farm is only two-fifths of an acre, according to an estimate by the Bureau of Crop Estimates, and yet the estimated total acreage of the State is 67,300.

Of the German potash imported into the United Kingdom before the war, about one-fourth was used in agriculture, but the prediction of German papers that British agriculture would be greatly damaged by the stoppage of the supply from Germany has not been verified. New domestic sources of supply have been utilized, chief of which is the dust of blast furnaces. Another big source of supply has been found in the washing of greasy wool, and another available one is the dust and fumes of cement kilns.

The prices paid for picking cotton, this year, average $1.18 in North Carolina, $0.99 in South Carolina, $1.05 in Georgia, $1.34 in Florida, $0.92 in Alabama, $0.96 in Mississippi, $1.04 in Louisiana, $1.25 in Texas, $1.28 in Arkansas, $1.31 in Tennessee, $1.57 in Oklahoma, and $2 in California. These prices are per 100 pounds of seed cotton, including short and long lint and sea island, and have been ascertained by the cotton crop specialist of the Bureau of Crop Estimates. In 1896 the United States average price for picking upland cotton was 44 cents.

In the prewar period of five years, 1909–1913, the United States produced 18.4 per cent of the world's crop of wheat and contributed 13.5 per cent to the world's exports of wheat. Of corn, the production was 71.1 per cent and the exports 16.6 per cent; of tobacco, the production was 36.7 per cent and the exports 41 per cent; and of cotton the production was 61.6 per cent (China omitted) and the exports 64.5 per cent. During the same five years, the United States produced 26.2 per cent of the world's crop of oats, 12.4 per cent of barley, 2 per cent of rye, and 6.3 per cent of potatoes.

BY whatever sacrifice it requires at home or yonder, we must persevere until we drive the invader out of Belgium, out of Italy, back from Alsace-Lorraine, back from Italia-Irridenta, back from bleeding Poland and stricken Servia, back from every foot of soil that he has defiled with his touch, inch by inch, mile by mile, day by day, and if need be year by year, until that happy hour when some shouting American color-sergeant will take our glorious rainbow flag of the world's hope and peace, and fling it above the battered ramparts beyond the Rhine.—Clarence Ousley.

Kills 2,000 Prairie Dogs for $9.79; Less Than a Half Cent for Each Helper

Under the direction of the Bureau of Biological Survey one man poisoned approximately 2,000 prairie dogs in a single day on a 320-acre field in northern Arizona, 1,641 of the animals being counted in the open, while it was estimated the balance died in their holes. The total expense of this 10-hour campaign against crop despoilers amounted to $9.79.

Illustrative of the scope of the work, more than 3,500,000 acres of Government land have been freed recently of prairie dogs by similar practices, the destruction being conducted by field parties and through the assistance of farmers and stockmen in New Mexico, Arizona, Colorado, Utah, Wyoming, Montana, and North Dakota.

In addition to prairie-dog extermination, efficient Government control has also been instituted against the ravages of ground squirrels, jack rabbits, pocket gophers, and other rodents in the agricultural and grazing lands west of the Mississippi River. Annually these pests destroy much forage as well as cultivated crops, thereby lessening the livestock carrying capacity of the range and reducing crop production. Cooperative campaigns conducted by the Biological Survey, the States Relations Service, and the State agricultural colleges are designed to exterminate thes noxious rodents, the work being centralized at the present time in North Dakota, Montana, Idaho, Washington, Oregon, Wyoming, Utah, Colorado, Arizona, and New Mexico.

How Farmers Help

Each year hundreds of tons of poisoned grain are prepared and distributed under the direction of the Biological Survey. Recently 50,000 farmers in Montana, North Dakota, and Idaho have furnished over $100,000 for the purchase of poison material to be used in their localities. Furthermore, farmers have aided in distributing the poisoned bait over several hundred thousand acres of Government land adjacent to their personal agricultural holdings in order to restrict the broadcast dissemination of these malicious marauders.

Fighting Jack Rabbits

Thoughout the Western States jack rabbits are objectionable offenders against profitable crop production, such materials as alfalfa, wheat, barley, oats, and beans being the particular prey of the rodents. Where good markets are available which will handle the rabbits in quantities for human-food purposes the animals are exterminated by means of trapping and by hunting drives conducted as dragnets which free the infested regions of the undesirable rabbits. Last winter one small western community marketed in California cities over 20,000 rabbits which were obtained in this manner.

Poison operations against the jack rabbits are carried on in sections where it is impossible to utilize the animals for food purposes. Last year Nevada farmers killed 45,094 jack rabbits, of which number 20,786 were sold on the San Francisco markets at $3 a dozen. Metropolis, Nev., a community of 60 families, cooperated in the killing and marketing of 21,500 rabbits. The funds realized from the sale of this meat were utilized in the purchase of rabbit wire to be used in subsequent drives. Previous to the establishment of control, the rabbits caused an annual loss of $50,000 in this community. In the Eastern States valuable assistance has been given to the farmers in protecting their orchards and truck crops against pine mice and cotton-tail rabbits which ordinarily cause much damage.

The Biological Survey managed the successful campaign against gophers in the Uinta National Forest, Utah, and the Nebraska National Forest, Nebr. In Virginia, the Federal department in cooperation with the State agricultural college has controlled the depredations of the pine mice which previously damaged orchards, while in other States assistance has been given in exterminating the pine, meadow, and deer mice as well as wood rats. Losses by house rats which annually exceed $200,000,000 are also being controlled by educational campaigns which emphasize the value of poisons and traps in combating these pests. A campaign is now in progress in the States of Alabama, Georgia, and Mississippi.

Boys and Girls Trap Moles

In western Washington and Oregon as well as in northern California a successful method of trapping the Townsend mole has been devised, while market prices have been stabilized so that the funds accumulating from the sale of skins approximately pay the expenses connected with ridding the farms of them. Boys' and girls' mole clubs have been organized and have attained commendable and profitable results in decreasing the numbers of these animals.

In Bingham County, Idaho, one farmer killed 2,487 ground squirrels, the bounty from these animals totaling $49.74, while the outlay for poison amounted to $1.70. Last year in Bannock County, Idaho, 5,500 ounces of strychnine were purchased, sufficient poison to kill 2,612,500 ground squirrels, as the usual dose is one ounce of strychnine mixed with 20 quarts of oats. This bait was scattered in teaspoonful quantities around the holes of the ground squirrels. By this method the rodents have access to the bait while live stock which may be pastured on the neighboring range are not exposed to injury. In Bonneville County, Idaho, one farmer covered an infested field with poisoned bait and one hour later walked back over the field to find that 278 ground squirrels, 6 rabbits, 10 rock chucks, and a large number of field mice had been killed.

In North Dakota 5,430,000 acres of farming land have received the first treatment with poisoned bait in controlling ground squirrels while in addition 7,430,000 acres have been re-treated to complete the pest extermination on this area. Farmers numbering 34,786 cooperated actively in this work. In the sections where the work has been conducted for two or more years 90 per cent to 95 per cent of the squirrels have been eradicated, while in localities where the treatment has been practiced only one year from 80 per cent to 90 per cent of the pests have been killed. Before these eradication campaigns were begun the annual losses in North Dakota aggregated between $6,000,000 and $9,000,000. The economic value of the work in that State during 1918 is estimated at $2,500,000.

BEES DO BETTER THAN LAST YEAR

The condition of fall honey plants, this year, is somewhat lower than a year ago. About 37 pounds of surplus honey per colony of bees was the estimated average yield by September 1, this year, the Bureau of Crop Estimates announces. This compares with 36 pounds to the same month in 1917 and 46 pounds in 1916.

For the wheat crop of 1917 the farmers of this country received an average price of $2.05 per bushel; for 1916, $1.44; for 1915, 98 cents; 1914, 99 cents; 1913, 79 cents, as estimated by the Bureau of Crop Estimates. In the past year, State averages (excluding States producing less than 1,000,000 bushels) ranged from $1.83 per bushel in Utah to $2.66 in South Carolina.

The ordinary washing of dairy utensils is not sufficient to insure freedom from bacteria. The only safe method of destroying in utensils germs which affect the hygienic and keeping qualities of milk and cream is by sterilization.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems in Cultivation and Harvesting During the Next Few Weeks

NORTH AND WEST

The following suggestions are from the Office of Extension Work in the North and West, United States Department of Agriculture:

PLANS FOR NEXT YEAR

As the end of the season approaches, farmers will have more time available in which to review the results of the present year. In the light of the knowledge which has been gained plans can be made for the coming year. It is undoubtedly true that the work of the farm can be conducted to greater advantage and better returns can be secured from the various enterprises when a definite program is outlined in advance of the actual field operations. The question concerning crop acreages for 1919 will, therefore, be determined several weeks before seed time. Possibly some of the preliminary work can be done this autumn, and less time will be required to complete the preparatory work next spring.

SAVING AND STORING SEED

The seed campaign is being more generally understood to be a continuing campaign. First the seed must be saved. Then it must be stored. Afterwards it must be defended—protected against moisture, cold, heat, and vermin of all sorts. A continuing campaign of defense—and nothing less—will insure perfect seed for next year's crop.

PARTNERSHIP IN EXTENSION

In the Northern and Western States extension workers are taking advantage of the season to consider with farm-bureau officers and farmers generally the problems of production for next season. There is developing a partnership method that promises much for increasing the effectiveness of extension work through a better understanding of the conditions which must be taken into account in the effort to increase agricultural production. There will be more rather than less extension teaching by college men, but there will be very much more consultation with farmers, due to the better understanding of the need of recognizing the value of the farmers' experience, knowledge, and judgment. The result will be more effective work. The meaning of "cooperative extension work" is being greatly broadened and deepened. The Department of Agriculture and the agricultural colleges cooperate in doing extension teaching; and more and more they cooperate with farmers and through State and local organizations in which farmers have a controlling voice.

WINTER PRUNING OF APPLE AND PEAR TREES

Begin pruning the apple and pear trees any time after the leaves drop. Cut out all diseased branches and all crowding branches to open up the top so the sunlight can get in next year to color the fruit. If large branches must be taken off, begin sawing on the underside and cut about one-third through of the branch; then saw from the top to meet the lower cut. In this way there will be no breaking or tearing down of the sapwood and bark, as will be the case if the sawing is all done from the top.

Cut off all branches so short that no stub will be left and after a few days cover the large wounds with white lead and raw linseed oil paint.

Do not prune the stone fruit trees until spring.

MORE MOUTHS TO FEED

The liberation of parts of Belgium and Northern France from German domination has already placed an additional obligation upon the American people. The larger part of the people of the evacuated regions are destitute. They must have food, and this country is the only place from which it may be had in sufficient quantities. This means that we will be asked to get along with less meats, fats, grains, and sugar, and make up the difference in our diet as far as possible with the things that we can grow in our own dooryards. The home vegetable gardens of America must be relied upon for a larger proportion of our living than ever before. There are thousands of acres of idle land within and adjacent to our cities and towns, and it is for our city people to utilize spare time in the cultivation of these lands.

Now is the time to begin gardening operations for next season by securing the use of a plot of ground, plowing, fertilizing, and fitting it for early planting next

(*Continued on page 14.*)

IN THE SOUTH

The following suggestions are from the Office of Extension Work in the South, United States Department of Agriculture:

LAY IN A SUPPLY OF WINTER FEED

Dairy and live-stock farmers should lay in their supply of concentrated feeds, such as cottonseed meal, velvet bean meal, peanut meal, etc., as early as possible. There is no indication that prices will be lower in the future, and freight congestion will doubtless become more serious as winter advances. As far as possible, farmers should cooperate in the purchase of such feeds, so as to be able to ship in car lots. Considerable expense in freight and handling by middlemen may be saved by purchasing in this way.

TAKE CARE OF YOUR COTTON SEED

Cotton seed is high priced, and every pound of it is needed. Therefore, farmers, gin men, and cottonseed oil men should use especial care in the storage and handling of seed this year. If permitted to become wet or if stored damp in large quantities, it is very liable to heat, and this heating causes the seed to deteriorate, both for oil and feeding purposes. Seed should be stored when dry and in a dry seed room. If in doubt as to condition it should be watched, and if it shows signs of heating it should be thoroughly stirred and aerated.

DESTROY COTTON STALKS

The light infestation of the cotton boll weevil in most parts of the territory during the past season may cause farmers to neglect measures for destroying as many of the weevils this fall as possible. All cotton stalks in fields infested by the weevil should be destroyed, either by grazing closely early in the season or by thoroughly plowing under the stalks before frost, if possible. In addition to this, rubbish on ditch banks and other places about the fields should be cleaned off, in order to destroy the hibernating quarters of the weevil in and about the fields.

TERRACING

Throughout many parts of the South the hill and rolling lands are subject to

erosions from the heavy winter rains. An effective way to prevent this erosion is to build terraces, preferably not less than 15 feet wide, that have been carefully laid out with a good farm level. It is much easier to save lands from washing away by means of terracing than it is to attempt to build up washed and gullied fields.

HOG RAISING IN THE SOUTH

During the past 12 months the Southern States have responded generously to the Government's appeal to grow more hogs.

Farmers everywhere who have grown hogs for market, and have given the proper care and attention to them, have found that they are proving a most valuable cash crop for the southern farmer.

Farmers throughout the South who contemplate going into hog raising should begin now to locate good brood sows and make plans for buying wire to put hog fences around the fields that they expect to plant to hog crops. The hog is a grazing animal, and, to be grown economically, must be provided with pasture crops.

Among the valuable pasture crops for hogs are oats, rye, wheat, barley, rape, soy beans, cowpeas, Bermuda grass, lespedeza, red clover, alfalfa, etc. Plan now to have a succession of grazing crops for the hogs throughout the year.

HOUSING LIVE STOCK

Poultry, hogs, and dairy cattle, to give best results, must be housed, especially at night, as the weather gets frosty. All buildings used for housing such animals should be put in good condition, and where necessary remodeled along approved lines. Farmers contemplating the construction of new farm buildings should seek the advice of county agents or those who are prepared to give expert information on the construction of farm buildings.

HUSKING CORN

The delay in husking and hauling corn in the fall of 1917 and the extreme winter following, not only caused considerable damage to a part of the corn crop, but also was a source of much anxiety to farmers as a labor problem in late winter and early spring. Farmers should profit by last season's experiences and get corn husked and in the crib before severe weather arrives.

STORING CORN

Protect your corn in storage on the farm from injury from insects, rats and mice, and the weather. Remember that corn is worth money. See your county agent or send to the State college of agriculture or this department for bulletins telling how best to get rid of rats and mice and how to treat corn with carbon bisulphide to prevent damage from corn weevil.

WINTER'S FOOD AND WOOD

Look to the winter food supply. The family which has good, clean, hard corn for meal, or wheat for flour, hogs and chickens for the winter meat, laying hens for an egg supply, a good milk cow well fed and cared for, plenty of home canned and dried fruits and vegetables, sirup, and vinegar from their own farm, and plenty of good firewood will be safe for the winter and need not spend much time worrying. Look over your storage room and your woodpile. How are you fixed?

SELECT PEANUT SEED NOW

The Southern States bordering on the Gulf of Mexico had an enormous acreage planted to peanuts the past season. Part of the crop was planted with the intention of marketing the product, but a large acreage was grown for feeding to hogs. The difficulty has been that many of the growers have made no distinction between varieties suitable for the markets and those best adapted to hog feeding. Very little attention has been given to seed selection or to the purity of the seed, and as a result the product is taking a low grade and price on the market.

The demand is primarily for the Medium White Spanish or True Spanish, and every farmer who expects to grow peanuts for the market next year should arrange now for a supply of pure seed of this variety for next year's planting. If a fair grade of seed is available it should be hand-picked and only sound seed that is true to variety selected for planting. Any mixture lowers the grade by at least one grade or $5 to $10 or more a ton. This difference in price will more than pay the difference in cost between poor seed and good seed. Save good seed now.

DEPARTMENT REITERATES ITS RULING THAT SACCHARIN ADULTERATES FOOD

The use of saccharin in foods is regarded as an adulteration under the food and drugs act, according to a statement issued recently by the United States Department of Agriculture.

The department had been asked by various interests to reverse, or, at least to reconsider, the position which it took in 1911 upon the use of saccharin in food brought under the jurisdiction of the Federal food and drugs act. This position in effect is that investigation has shown that the continued use of saccharin for a long time, in quantities over three-tenths of a gram a day, is likely to impair digestion and that the addition of saccharin for cane sugar and other forms of sugar reduces the food value of the product and hence lowers its quality. Therefore, the Secretary of Agriculture declared that he would regard as adulterated under the food and drugs act any foods containing saccharin which might be brought under the jurisdiction of that law.

The department declares it is aware of no investigations which contribute any more recent evidence pointing to the harmlessness of saccharin. It has, therefore, declined to reverse its decision and it has regarded it as unfitting at this time to reopen the question for the reason that a case is now pending in the courts in which the issues are presented clearly. The department will endeavor to press the trial of this case.

New Zealand Markets Opened to American Grapes, to Offer Outlet

As the result of fruit-market investigations carried on recently in New Zealand by a special investigator of the Bureau of Markets, United States Department of Agriculture, cooperating with the American consul general at Auckland, grapes from the United States henceforth are to be allowed entrance into that country. Heretofore imports of the fruit into New Zealand have been allowed only from Australia.

It is found that large quantities of grapes are consumed in New Zealand, but owing to the opposite growing seasons in that country and the United States the only grapes in the market during the American season are from hothouses, the prices ranging approximately from 25 cents to 75 cents a pound. It is believed that the opening of the New Zealand markets will afford in time a fairly substantial outlet for California varieties, such as the Malaga and Red Emperor.

Growth which is to be cleaned up on swamp land or any soil containing a large amount of organic matter should be burned when the ground is wet, to prevent the destruction of valuable plant food. When soils do not contain a large amount of organic matter and it is the intention to seed in the ashes immediately after the burning, too much emphasis can not be placed upon the importance of getting a clean burn.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Loans Aid 8,806 Farmers to Plant Wheat.

A total of 8 806 applications for seed-grain loans were approved by the branch office of the United States Department of Agriculture at Wichita, Kans., and $2,-025,262 was loaned to drought-stricken farmers from the $5,000,000 emergency fund provided by the President. These loans were limited to $3 an acre for not to exceed 100 acres, and were made only to farmers whose credit was exhausted by reason of two successive crop failures on account of drought. The money was for the purchase of seed for fall planting. At the customary rate of seeding—2 to 3 pecks of wheat per acre in the dry counties—this loan was sufficient to purchase enough seed wheat to sow more than a million acres that otherwise might not have been seeded. L. M. Estabrook, Chief of the Bureau of Crop Estimates, and Assistant to the Secretary of Agriculture, was in charge of the Wichita office which served the Southwest territory—Kansas, Oklahoma, New Mexico, and Texas. A report of loans made in the Northwest region through the department's branch office at Great Falls, Mont., in charge of Prof. G. I. Christie, now Assistant Secretary of Agriculture, will be issued soon.

Feeders Favor Army Beef Changes.

The recent announcement of the Government policy of buying beef for the fighting forces of Uncle Sam and the allies on a quality basis has met the approval of cattle feeders. With quality, irrespective of weight, as a basis feeders can make a quick turnover on their money invested in cattle. They can market well-finished and conditioned beeves which weigh less than 1,000 pounds for Army or Navy disposition. It is believed the regulation will stabilize production and better balance the livestock industry. The abandonment of the old schedule which called for beef of specific weights drops the bars so that hereafter lightweight baby beef will be available for feeding our soldiers and sailors. The new ruling favors the increase in the production of baby beeves, a branch of meat making which affords an attractive opportunity for dependable and quick profit to the producers.

Frosted Potatoes Make Good Starch.

Frosted and decayed potatoes have been found in trials conducted by the United States Department of Agriculture to be entirely capable of producing acceptable and frequently normal yields of clean, white starch of good quality. Much of this material appears to possess a potential value for the production of sizing starch approximating that of the stock at present used for this purpose. The mechanical difficulties in recovery from decayed pulp are sometimes greater and sometimes less than from normal stock. Modified procedure adapted to these abnormal pulps doubtless could be devised, department specialists say, but there seems to be no reason why the present method might not be applied profitably in the meantime in the production of sizing starch in factories at the large shipping centers installed to utilize the great quantities of frozen and decayed potatoes arriving during the fall and winter. This would turn to profitable account large supplies at present without value, but which are a serious burden of expense since to their cost of production must be added transportation and dumping charges.

War Needs Determine Soil Surveys.

As a result of the pressing needs for military use, the soil-survey work of the Bureau of Soils, United States Department of Agriculture, is being directed more and more to the surveys of areas where information is immediately needed by the War Department. In the selection of areas to be surveyed in the immediate future, this question of military exigency will take precedence over all other requests or plans for distributing the work throughout the States. Work will be continued in the States that are cooperating in soil-survey operations so far as it can be consistently done.

HURTS, DOESN'T IT!

One creamery returned over $2,600 worth of milk and cream in one year to farmers. A milk plant received nearly 50,000 gallons of sour milk in one year. Cooling on the farm will reduce this loss. Don't say you can't cool milk. Natural ice can be harvested on farms where over 85 per cent of our milk and cream are produced. Make your winter work pay you back with interest next summer.

Write to the United States Department of Agriculture for a bulletin on farm ice houses.

Another Move for More Poultry.

All the district agents of the United States Department of Agriculture who are engaged in emergency poultry work will meet with members of the Washington administrative force at Kansas City, October 28-30, to take a census of recent results and to launch another campaign for the efficient production of an abundance of poultry and eggs. Practically all the Southern Mississippi Valley and Middle Western States have effected satisfactory increases in their production of poultry products. The emergency agents are now waging a successful campaign against the unprofitable hens by getting owners to cull such fowls from their flocks. Hens which produce less than 75 eggs a year are better dead than alive while fowls which yield from 75 to 100 eggs annually are only fair producers. Good layers produce 125 eggs and upwards every 12 months. In some flocks of 200 hens, 75 of the low-producing fowls have been eliminated and still the normal production has been maintained. This results from more favorable conditions and surroundings for the hens left in the flock which are not so crowded and which, consequently, produce better.

Whole County Preserves Eggs.

Five hundred women in one Oregon home-demonstration agent's territory—practically everyone she reached in her work—preserved eggs last summer. Previously few eggs had been put in water glass in that locality for winter use.

Tick Work to Free 100 Counties.

At least 100 counties and probably a number of parts of counties will be released from Federal quarantine against the cattle fever tick in December, accord-

ing to officials of the Bureau of Animal Industry, who have received reports from the 10 Southern States in which the work is being carried forward. Eighty-three counties and 35 parts of counties were released in December, 1917, constituting a record up to that time. The unprecedented amount of territory to be released this year will probably include areas in nine States. The quarantine is expected to be lifted from all of South Carolina, as it was last year from all of Mississippi.

More Hogs Raised in Maine.

An increased pork-production campaign carried on by county agents and farm bureaus in Maine has resulted in a 15 per cent increase over last year in the number of hogs raised. Previous to 1917 self-feeders for hogs had been used on a small scale, but had proved unquestionably successful. The results showed that farmers with self-feeders kept more hogs than they could otherwise. This suggested to the county agents that the self-feeder be made the basis of a campaign for more pork. Building "bees" or demonstrations were held by agents, at which self-feeders were constructed with the help of the farmers attending the meetings, and instructions given for their use, particular emphasis being placed upon their advantage in connection with pasturing hogs. As a result of the campaign, 745 additional self-feeders are now reported in use and 2,600 more hogs are being raised with them.

Old-Clothes "Clinics" the Fashion.

To be up to date these days your community should have an old-clothes clinic, the Department of Agriculture suggests. Not the amount you spend on clothes but the amount you save is the criterion by which you are judged in this year of war. The home demonstration agents usually hold the clinics, and old garments are brought, ripped, and made over by the women under their direction. This wool-conserving campaign in Iowa is particularly strong.

Sentiment Favors Federal Game Laws.

The chief game warden of the Bureau of Biological Survey, Department of Agriculture, reports that 24 States have passed laws conforming to the provisions of the Federal law in relation to waterfowl, and that the spirit of State legislators, State game commissioners, sportsmen, and others interested in game protection—another food-conservation measure—is such that it seems likely that within two or three years every State in the Union will have enacted uniform laws for the protection of migratory birds.

Publicity Still Necessary.

The need for continued effort on the part of the home demonstration agent to keep before the people the purpose and results of her work was emphasized one day when an agent told a woman she met in her county that she was a home demonstration agent. At once the lady replied, "Why, that's my work, too. I demonstrate corsets in the home. What is your line?"

"Watch the Weather Forecast."

Shippers of food and other products liable to injury from freezing are urged to watch the daily forecasts, issued by Weather Bureau station during the winter in cities and towns of considerable size, of minimum temperatures expected to occur within a shipping radius of one day or two days of the station. These forecasts may be had by telephoning or telegraphing the Weather Bureau office, or arrangements may be made in advance to have them sent as desired. When freezing temperatures are forecast, shipments may be given adequate protection or delayed until conditions change, or if they are en route orders may be telegraphed to have them placed in shelter. Experience of large produce-shipping firms, as given in their voluntary testimony, is that as a result of careful attention to these forecasts their losses from freezing of goods in transit have been negligible. The importance of this service is thought to be especially great during the war, with its food necessity.

Starts Antifly Campaign.

In small towns where there are no sewer systems the problem of disposal of waste is a very serious one. In one such town in Oregon the members of the Home Economics Club, working under the direct supervision of the home demonstration agent, induced the city council to pass an ordinance requiring all privies to be made fly proof. This was a big step toward better sanitation and undoubtedly will lead to other improvements for controlling the breeding of flies.

Boys Respond to Call for Wheat.

Reports coming to the States Relations Service of the United States Department of Agriculture warrant the estimate—considered quite conservative—of at least a 15,000 enrollment in boys' wheat-growing clubs in the 15 Southern States. These clubs in the South took up wheat growing only a year ago, at which time there was an enrollment of only 2,839 members who were growing this crop.

Department Stores Cooperate.

Oregon department stores are cooperating with home-demonstration agents in that State in teaching the women the successful use of substitutes. Demonstrations are held in the stores and printed recipes for conservation foods are given those who attend the meetings. Much interest has been evidenced by the attendance.

County Agents Boost War Crops.

A 7 per cent increase in hog production and a 25 per cent increase in sugar-beet production over the preceding year is the result of campaigns carried on this year by county agents in Minnesota. When the call came for more pork and more sugar as a war emergency, surveys were made in those sections of the State where hogs are raised and where sugar beets are grown profitably. The county agents advised farmers to raise one litter more of pigs and to house and feed them properly. In spite of the fact that there has been a shortage of corn for feeding and that a large number of brood sows and hogs were sold and shipped to neighboring States where corn was more plentiful, the increase in production was made. A larger acreage in sugar beets was also secured through the efforts of the agents.

SOY BEANS MAKE GOOD PASTURE

The soy bean can be utilized to advantage as pasture for all kinds of stock, the most profitable method, perhaps, being to pasture with hogs, supplementing the corn ration. This is especially desirable when the harvesting is interfered with by bad weather, lack of labor, or other causes, and when the crop is grown for soil improvement. In this way the crop is profitable not only from the standpoint of feeding value, but also in the increase of soil fertility due to the manure and refuse vines.

The bulk of the durum wheat raised in the United States is received at the five primary markets, Minneapolis, Duluth, Omaha, Chicago, and St. Louis. These receipts grew from 21,000,000 bushels in the year beginning July 1, 1913, to 44,000,000 bushels in 1915, and fell to 22,000,000 bushels in 1916 and 16,000,000 bushels in 1917. Exports grew from 12,000,000 to 25,000,000 bushels from 1913 to 1915, followed by decline to 6,600,000 bushels in 1917.

Where America's Wheat Surplus Will Come From This Year; Supply Located

Under normal conditions the per capita consumption of wheat in the United States is about 5.3 bushels for food. During the past year the consumption has been 10 to 20 per cent below normal. If a reduction of 10 per cent below normal is adopted for the consumption of 1918–19, and allowance be made for seed, a national surplus of 318,000,000 bushels of wheat is the result of the estimated crop and its domestic requirements.

Surplus Concentrated

Not only is the supply of wheat for the coming season much larger than it was last season, but it is more concentrated in the large surplus States. As estimated by the Bureau of Crop Estimates, North Dakota, with 84,000,000 bushels of wheat above the consumption of its people and seed for next year, is the State with the largest surplus for this consumption year. Next is South Dakota, with 72,000,000 bushels; and then follow Kansas, with 70,500,000 bushels; Minnesota, with 64,000,000 bushels; Indiana, with 36,000,000 bushels; Nebraska and Missouri, each with 29,000,000 bushels; and Montana, with 19,000,000 bushels.

New York is by far the chief deficiency State in wheat production. For the current year dependence must be placed on an external supply of 44,000,000 bushels, or 84 per cent of the total requirements. Pennsylvania's similar dependence is 24,000,000 bushels, or 50 per cent; in Massachusetts, 17,000,000 bushels, or 100 per cent; in Texas, 16,000,000 bushels, or 64 per cent; in New Jersey, 12,000,000 bushels, or 89 per cent; and in California, once a great wheat-surplus State, 10,000,000 bushels, or 62 per cent of the total requirements.

North Central States Ahead

Every one of the States in the North Central group west of the Mississippi River is a wheat-surplus State, and the total surplus of the group is 356,000,000 bushels of wheat, or 38,000,000 bushels more than the national surplus. In other words, the United States outside of the West North Central States does not produce as much wheat as it requires.

For the current consumption year the East North Central States have a wheat surplus of 54,500,000 bushels, and the Rocky Mountain and Pacific States a surplus of 58,000,000 bushels. On the other hand, the chief deficiency group of States is the North Atlantic, since these States fail to produce the wheat that they require by 112,000,000 bushels. The South's wheat production is 37,450,000 bushels below requirements.

LESS WOOL IN SEPTEMBER

Manufacturers used approximately 5½ million pounds less wool in September than in August, 1918, September figures being about 58,300,000 pounds, grease equivalent, compared to 63,900,000 in August. Stocks of wool consumed in September in pounds, by classes, as given by the Bureau of Markets, United States Department of Agriculture, were: Grease, 35,896,421; scoured, 10,143,136, and pulled, 1,608,856. The report shows Massachusetts consumed most wool in September, followed in order by Pennsylvania, New Jersey, Rhode Island, New York, Ohio, Connecticut, New Hampshire, and Maine.

Land is usually pastured several years after the small growth is disposed of before it is stumped. When land is kept in pasture for several years before any stumps are removed, many of the small stumps will entirely decay and the fibrous roots of the larger ones will have become so weakened by decay that it is much easier to remove them.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(Continued from page 10.)

spring. Irish potatoes, beets, carrots, peas, beans, corn, and tomatoes are among the most important garden crops from a food standpoint. Irish potatoes, peas, beets, and carrots can be planted almost as soon as the frost is out of the ground, and the more tender crops can be planted just as soon as the ground has become reasonably warm. Some of the garden vegetables are ready for use in about six weeks after planting, and these will help fill our own tables and provide for the shipment of food to the millions of destitute people overseas. Make a start for a home vegetable garden now, and do your share by providing at least a part of the vegetables used on your own table.

FALL PLANTING OF APPLE AND PEAR TREES

Where possible plant your apple and pear trees this fall; then this job will not be on the spring waiting list. Trim off the ends of broken roots and cut long roots back to about 6 inches. Pack the soil firmly around the roots and mound up a foot or more with earth to keep the trees from swaying in the wind and to prevent water from settling around them. Cut back the limbs one-half or more and if more pruning is needed for these new trees do it in the spring.

Plant stone fruit trees next spring.

PROTECT THE STRAWBERRIES

After the ground freezes cover the strawberry plants with a mulch of a couple of inches of straw, waste hay cut before it ripened seed, or coarse manure with the fine portion shaken out. Do not use vegetable rubbish containing weed seeds, because these seeds will grow next year and cause a lot of work to keep the weeds cleaned out. The mulch protects the ground from sudden thawing and freezing which "heaves out" plants not protected.

ARE THE BERRY BUSHES READY FOR WINTER

If the old fruiting canes of the raspberry and blackberry bushes have not been cut out, do this before winter begins. After the fruit crop is matured the fruiting canes die and are likely to harbor insects and diseases. Cut out and burn these and also all small weak canes. Mulch the patch with rotted stable manure or other decayed vegetable matter and work this into the soil in the spring.

SOME WAYS TO INCREASE FARM PROFITS

In a recent report to the department, W. A. Dickinson, county agent, Floyd County, Iowa, attempts to show why some farms are more profitable than others. Owing to the fact that farm labor has been exceedingly scarce in some districts during the present season, many operators have attempted to increase the efficiency of their man labor as much as possible. They have done this by using larger machinery and more horse power. They have also tried to secure a more even distribution of labor throughout the year by growing a variety of crops and keeping live stock. In some cases a portion of the crop has been harvested by the live stock. They have also kept close tab on the work that required immediate attention, and they have avoided work which could be postponed while more productive work received immediate attention.

The Philippine Islands are steadily gaining in the production of sugar. From a crop of 345,077 short tons of raw sugar in 1913, and of 408,339 tons in 1914, the crop of 1917 advanced to 425,266 tons.

When Cattle "Lose Their Cuds" It's Time to Investigate Their Health

Although the relation of the act of chewing the cud to the natural process of digestion in cattle is probably quite generally understood, the United States Department of Agriculture frequently receives inquiries concerning the proper treatment for cattle which have "lost their cud," the impression apparently being that the cud is something which can mechanically disappear, and when so lost must be replaced, in order to restore the animal to health.

Rumination or chewing the cud is a natural process in connection with the digestion of cattle and other ruminant animals. In ruminants the food when first taken into the stomach is imperfectly chewed, and is returned to the mouth for remastication. This returned ball of food is termed "the cud."

So-called loss of cud, the Department explains, is simply a suspension of chewing, frequently one of the first indications of sickness in any kind of ruminant animal, since ruminants generally stop chewing the cud when feeling out of condition. Any condition affecting the general health of cattle may result in suspension of chewing, and there is almost certain to be an interruption of this process when there is any pronounced disturbance of digestion.

Placing wads of hay in the mouth, the use of salt pork, and similar methods for restoring the cud are the outcome of local superstitions and a lack of knowledge concerning the digestive process of the cow. Instead of such treatment an effort should be made to determine the exact nature of the illness affecting the cow with a view to applying proper treatment.

It may be confidently expected with an approaching return of the animal to a state of normal health, there will be a restoration of the process of digestion, including the function of rumination or cud-chewing.

LAW AUTHORIZES DEPARTMENT TO ESTABLISH FOOD DRYING INDUSTRY

Establishment of an industry within the United States to dry fruits and vegetables as a means of conserving the food supply of the Nation is one of the important projects started by the Department of Agriculture under authority conferred in the regular Agricultural Appropriation Act recently passed.

An appropriation of $250,000 is included in that act to enable the Secretary of Agriculture to determine the best means and processes of dehydration, and to disseminate information as to the value and suitability of dried products for food. Authority is given to establish and operate plants for drying fruits, vegetables, and other edible products for supplying food for the Army and Navy, if such action is deemed necessary by the President. Cooperation with commercial drying concerns is also provided.

The Secretary of Agriculture has designated an advisory board to administer this appropriation and outline and control the work to be done under it. The advisory board is to consist of representatives of the bureaus within the Department of Agriculture which are concerned with food production, regulation, and conservation, and of one representative each of the Food Administration and of the Sanitary Corps of the Army.

SOY BEANS FOR SHEEP

In feeding trials with sheep at the Wisconsin station, soy beans produced larger gains for a given amount of feed and a heavier clip of wool. In one experiment two lots of 10 lambs each were fed the same roughage. One lot received shelled corn and whole soy beans in equal proportions, while the other received the same quantities of shelled corn and whole oats. The average gain of each lamb during a period of 12 weeks was 16.2 pounds when soy beans constituted a part of the ration, and but 13.7 pounds when oats were used. A pound of gain was produced on 6.11 pounds of grain and 7.11 pounds of roughage in the soy-bean ration, while 7.28 pounds of grain and 8.62 pounds of roughage were required in the oats ration. In another experiment the same rations were fed for 12 weeks to two lots of nine lambs each. The lot receiving the soy-bean ration gained 119 pounds in weight and produced 95.1 pounds of wool, as compared with 71 pounds increase in weight and a production of 81.3 pounds of wool for the lot receiving the oats ration. The second lot also consumed more feed per pound of gain.

MUNITION plants can not burn wood, warships can not burn it, nor, because of the transportation problem, can people living in cities. It is up to the farmers and people living in villages and small towns to use all the wood they can and help meet the coal shortage.

Why a Young Man With a German Name Wanted to Fight for America

That German surnames mean nothing in the land which is supplying the men and material to finish the Hun is proved again by a young American, whose father was born in Germany. He applied to the Secretary of Agriculture for a furlough from the department in order to join the fighters in France. Here is part of his letter:

"I have several reasons for desiring to enter the Army. The first and main reason is because I believe my services would be more valuable to the country at this time in the Army than in my present position. My second reason is perhaps a sentimental one. My father was born in Germany, in Bavaria. At the age of 17 years he ran away from Germany to keep from being forced into the army. Not that he was afraid to fight, as was proved by his four-year record in the Civil War, in which war he attained the rank of captain, but because he could not stand the autocratic government of the country in which he was born. If he were alive to-day he would never forgive me for not doing some active share in a fighting branch of the Army to help stamp out the rule of might of the Prussian empire."

He got his furlough from the department.

DISEASES ARE GIVEN ADMISSION BY OPEN WOUNDS IN PECAN TREES

Wounds made in pruning pecan trees and those arising from other mechanical injuries, such as careless cultivation, hail and wind storms, are all possible points of entrance for wood-rotting fungi, and should be protected to prevent losses, says Farmers' Bulletin 995, recently published by the United States Department of Agriculture.

Trees affected by this rot frequently will stand for many years, but it is inevitable that their crop-producing power and life are greatly reduced by the disease. The bulletin urges that limbs that are to be taken off should be cut closely to the main stem, which facilitates rapid heal-

ing, and if the wounds are so large that they will not heal completely in one season, they should be protected by applications of white-lead paint, grafting wax, or a preparation of one-third creosote and two-thirds coal tar.

In removing limbs from pecan trees in no case should stubs be left on the tree, says the bulletin. A sharp saw should be used and the cut made practically flush with the body of the tree. This permits the wounds to heal in the shortest length of time and leaves no surface or pocket for the collection of water, which favors the rapid development of the fungi. In removing a large limb it is necessary to first cut it off several feet from the tree and then remove the stub properly. If the cut is made flush with the body of the tree in the first instance it is usually impossible to prevent the weight of the timb from tearing part of the wood and bark below it. In top-working pecans, cuts should be made with sufficient slope to prevent water collecting on the stubs and some waterproof material should be applied. In extreme cases when rot has gained entrance to the heart of the tree the rotted wood can be cleaned out and protection given which will save the tree.

As a rule the wounds made by the removal of small limbs do not need to be protected, as the natural growth of the tree covers them rapidly. The most desirable compound to protect large wounds is one which disinfects the cut surface, furnishes complete protection for the longest period, and causes the least injury to the tissues. The preparation which best fills these requirements, according to the bulletin, is one made with creosote and coal tar. After a wound is made it should be left until it is dry and then thoroughly coated with some protective substance, which should be renewed as often as is necessary for complete protection. Prompt care of all wounds on pecans will amply repay the grower by insuring for him sound, disease-free trees.

All animals require plenty of good, pure water. This is especially true of the milking cow, as water constitutes more than three-fourths of the volume of milk. Stale or impure water is distasteful to the cow and she will not drink enough of it for maximum milk production.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, G. I. CHRISTIE.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, WILLIAM WALLACE MEIN.
Mr. Mein is the immediate representative of the Secretary of Agriculture in the discharge of the duties imposed upon him by the President's proclamation of February 25, 1918, with reference to licensing the importation, manufacture, storage, and distribution of fertilizers and fertilizer materials.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, E. H. THOMSON, *Acting Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings ,etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management, road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Brand, as Chief of the Bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licensees operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, E. B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI NOVEMBER 13, 1918 No. 15

Secretary Houston Urges Further Organization for 1919 Production

State of Preparedness Should be Continued and Agricultural Foundations Strengthened

Statement of Agriculture Head Says Fall Wheat Acreage Increased—Points Out Need of Beef and Fats—Spring Program in Preparation

David F. Houston, Secretary of Agriculture, in a statement issued to-day, urged that steps be taken to secure the better organization of the agricultural forces of the country, especially of the local farm bureaus, in preparation for the execution of the necessary production program for 1919. The fall-planting program is completed. Informal indications coming to the department are that the farmers planted this fall a considerably larger acreage in winter wheat than that of a year ago, which was 42,170,000, the second largest planting in the history of the Nation. A large acreage of rye also has been planted. It is too early, the Secretary said, to forecast how these crops will come through the winter and what suggestion should be made as to the spring-wheat planting. It is also too early to formulate and announce the details of the general spring-planting program. Conditions are changing very rapidly, and the requisite information is not now at hand. After full conference suggestions will be made sufficiently in advance of the planting season.

The Secretary, however, pointed out especially the need for an increased production of beef and fats. It seems clear, he said, that for a considerable period the world will demand particularly a larger supply than normal of live stock, and especially of beef and fats. American farmers should not fail to adopt every feasible means of economically increasing live-stock products. To do this farmers should give due thought to the securing of an adequate supply of feedstuffs and to the eradication and control of all forms of animal disease. The department has just issued a circular which contains suggestions regarding live-stock production.

PROGRESS OF WORLD FEEDING FROM THE UNITED STATES

The following table shows the increase over normal in exports of foodstuffs by the United States since it became the food reservoir for the world on account of the war. The figures are from the Food Administration:

TOTAL EXPORTS.

	3-year prewar average.	1916–17 fiscal year.	1917–18 fiscal year.	July, 1917, to Sept. 30, 1917.	July, 1918, to Sept. 30, 1918.
Total beef products...lbs..	186,375,372	405,427,417	565,462,445	93,962,477	171,986,147
Total pork products..do...	996,230,627	1,498,302,713	1,691,437,435	196,256,750	540,946,324
Total dairy products..do...	26,037,790	351,958,336	590,798,274	130,071,165	161,245,029
Total vegetable oils...do...	332,430,537	205,708,490	151,029,893	27,719,553	26,026,701
Total grains.....bushels..	183,777,331	395,140,238	[1] 349,123,235	66,383,084	121,668,823
Total sugar.....pounds..	621,745,507	3,084,390,281	2,149,787,050	1,108,559,519	1,065,398,247

[1] Wheat harvest 1917–18 was 209,217,333 bushels below the average of the 3 previous years.

Further organization of all agricultural agencies to carry out a carefully considered agricultural program for 1919 is necessary, the Secretary said. Not only should there be the best possible organization and cooperation of the Federal Department of Agriculture, the agricultural colleges, the State departments of agriculture, and farmers' associations, but the local farm bureaus and other organizations which support the extension forces should be strengthened. The perfecting of this organization is highly desirable, not only during the continuance of the present abnormal conditions, but also for the future.

Agricultural Commission Returns.

An agricultural commission, headed by Dr. W. O. Thompson, president of the

(*Continued on page 2.*)

PEACE TO FIND HUNGRY WORLD CALLING ON FARMS FOR FOOD

Assistant Secretary Ousley Tells Need For Still More Production

Declares City People Must Help Farmers in 1919 More Than Ever—Discusses Agriculture in Reconstruction Period

The immediate effect of peace probably will be to increase the demand for present supplies of food, for the moment we conclude peace with the central powers they will be in the market for our food, and they and half the world around them are hungry after four years of privation.

Declaring that this situation and the fact that 2,000,000 men in France hardly could be demobilized in time to restore normal farm labor conditions for the next year's planting and cultivation, Clarence Ousley, Assistant Secretary of Agriculture, in an address before the New York Humanitarian Society November 5, said that city people must help the farmers in even larger numbers in 1919 to insure adequate harvests of food crops.

Back to Normal Laws.

Mr. Ousley spoke of the heroism of the men and women on the farms; of their difficulties and sacrifices during the last season, when larger crops were produced in the face of serious labor stringencies. He said that these activities are not so likely to be maintained if there is peace next year as they were under war patriotism this year. Very soon, he warned, we shall come to the basis of agricultural production solely for the profit it offers.

(*Continued on page 3.*)

SECRETARY HOUSTON URGES FURTHER ORGANIZATION FOR 1919 PRODUCTION

(*Continued from page 1.*)

Ohio State University, and comprising trained agriculturists from a number of the State agricultural colleges and the United States Department of Agriculture, has just returned from Europe where it made a thorough investigation of the agricultural conditions of the allied countries. The information it brings will be considered in formulating the agricultural production program for 1919.

The Secretary's statement, addressed to "the farmers and the agricultural forces of the United States," is printed on this page.

FEED FOR HENS.

A good mixture for laying hens is 4 parts each of cracked corn and oats and 1 part barley or wheat, if available, which should be scattered in the litter. Provide 4 or 5 inches of good, clean litter.

A dry mash composed of equal parts of corn meal, bran, middlings, ground oats, and beef scrap should be kept in hoppers to which the fowls have access at all times.

Plenty of exercise increases the egg yield.

Cabbages, mangels, sprouted oats, cut clover and cut alfalfa make excellent green feed for poultry.

The hen's greatest profit-producing period is during the first and second years, and unless a hen is an exceptionally good breeder she should be disposed of at the end of her second laying season, before beginning to molt. Few eggs can be expected until the pullets are matured.

Support of War Fund Campaign Asked of Farmers by Mr. Houston

A message to American farmers, asking their support of the united war-work campaign has been issued by David F. Houston, Secretary of Agriculture. The message is as follows:

"*To the farmers of America:*

"Three million American boys, on the battle fields in France, in the cantonments on this side, and on our great ships, everywhere are fighting the battle for democracy.

"Back of them is another army—the splendid untiring men and women on the farms of America, who have taken up the additional burden laid upon them by the absence of many of their boys, and by their toil and sacrifice have produced the crops that to-day are helping to feed the allied world. From you, who are the soldiers of that army, every patriotic call has had an unhesitating and united response.

"To-day, in the name of the President of the United States, another call is sent to you on behalf of your sons and brothers. They are far away from their own homes, yet through the generosity of the American people the influence of the homes which they have left still follows them. Seven great organizations have taken it upon themselves to do for the boys in camp and at the front the things which every parent would wish to do for them if he could.

"These seven agencies are the Y. M. C. A., Y. W. C. A., National Catholic War Council, Jewish Welfare Board, War Camp Community Service, American Library Association, and the Salvation Army. Together these splendid societies represent every one of the best elements in our American life. Their huts are the soldier's church, his college, his library, his club, his theater, and his gymnasium.

"To provide this comfort, to make the American home follow the American flag, requires money in large amounts. These seven agencies will need more than one hundred and seventy millions to

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TO THE FARMERS AND THE AGRICULTURAL FORCES OF THE UNITED STATES:

During the period since we entered the war the farmers of the Nation have responded magnificently to the appeals for increased production and all the people have complied with the urgent requests for fuller conservation. During this present fall season our farmers have planted an increased wheat acreage and a large acreage in rye. It is too early now to make detailed suggestions for the spring planting season. We do not know how the fall grains will come through the winter, and we are not now able to forecast the demands and the conditions which will prevail after the first of the year.

TWO THINGS CLEAR.

This department, the agricultural colleges, and other organizations will continue to give definite thought to all the problems and, at the proper time, will lay the situation before you.

Two things seem to be clear:

One is that, for a considerable period, the world will have need particularly of a larger supply than normal of live stock, and especially of fats. We should not fail, therefore, to adopt every feasible means of economically increasing our live-stock products. As a part of our program, we should give due thought to the securing of an adequate supply of feedstuffs and to the eradication and control of all forms of animal disease.

NEED OF PERFECTING ORGANIZATION.

The other is the need of perfecting the organization of our agricultural agencies for the purpose of intelligently executing such a program as may seem wise. We should not only have the best possible organization and cooperation of the Department of Agriculture, the agricultural colleges, the State departments of agriculture, and farmers' associations, but we should especially strengthen the local farm bureaus and other organizations which support so effectively the extension forces and assist them in their activities. The perfecting of this organization is highly desirable not only during the continuance of the present abnormal conditions but also for the future. The local as well as the State and Federal agencies are of supreme importance to the Nation in all its activities designed to make rural life more profitable, healthful, and attractive, and, therefore, to secure adequate economic production, efficient distribution, and necessary conservation.

The main purpose of this appeal is to direct attention to the necessity of continuing our state of preparedness and of strengthening the foundations of our agriculture.

D. F. HOUSTON,
Secretary of Agriculture.

push their work forward through the forthcoming months. And, because their work is done in the same spirit, and for the same great end, they have wisely agreed to make their appeal to the public not separately but together.

"That appeal, which will be made to you in the week of November 11–18, will offer the American people one of the most splendid opportunities of the war to signal across the seas their united support of the boys who are fighting there. The cause is great; the total amount asked for is great, but not greater than the patriotism of the American farmers. Every house that flies a service flag will have a special interest in the success of that campaign. For every dollar means added cheer and comfort to the son of such a house.

"On behalf of the administration I send you this great call. But more particularly on behalf of the boys themselves. In the chill and damp of those French villages they are waiting for your answer—waiting for you to say to them: 'No matter how great the sum, we promise that you shall have the comforts of life over there. The success of this united war-work campaign is the proof that we are standing shoulder to shoulder behind you.'

"D. F. HOUSTON,
"*Secretary of Agriculture.*"

PEACE TO FIND HUNGRY WORLD CALLING ON FARMS FOR FOOD

(*Continued from page 1.*)

Mr. Ousley's address in full was as follows:

"Not long ago I heard a war worker relate this incident, which he had witnessed in shell-torn France: A poor peasant woman had returned to her home village from which the German despoilers had been expelled, and found her cottage in ruins. She had lost her husband and two sons in the war, and her other two sons were in the army. Alone, but undaunted, she set about the work restoration, and her deft hands soon converted the cellar into a livable habitation. Then her third son was sent back mortally wounded and died in her arms. She was burying his dear body when she received a message that her fourth and last son was killed. She paused but a moment in her ministration to the dead; her cheeks did not blanch but flushed as a soldier's would in a fierce charge; her lips did not quiver, but were firmly set; no tears came to her eyes, but they glistened with a new fervor of patriotism, as she caught her breath and with uplifted countenance, in a low and solemn tone as if recording an oath to high Heaven, she said: 'Vive la France!'

Sacrifice in America.

"A few weeks ago I received a letter from the wife of a farmer in New York State asking advice about a contemplated transaction involving the sale of her farm and the purchase of another. In order that I might understand the situation, she described in detail the manner of farming, the equipment, and the intimate operations. She is in the fullest sense a helpmeet to her husband. She not only performs the household tasks but lends a hand in the field. In four years she has rarely had breakfast later than 6 o'clock, or supper earlier than 8. The hours between are her working day. Among other striking statements in her letter was this:

> "'July 2 I cut an acre and a half of peas and my husband pulled them back, and July 3 we had an 8½-pound boy. Since then I have been tied to the house more or less, but by getting the little neighbor girl to tend baby I cut 12 acres of hay across the road on another farm while my husband was helping my father draw in grain. He has to drive 4½ miles when he changes work with him.'

"I dare not say which of these two women is the greater heroine—the one suffering denial, bearing children, enduring grief, toiling in field or factory and home, but sustained by the inspiration of immediate contact with the greatest tragedy in human history; the other, far removed from the sound or sight of military spectacle, likewise suffering denial, bearing children, but sustained by the unspoken and unutterable instinct for sacrifice and creation which is the unfailing quality of her sex.

"Compared with this the heroism of the battlefield, whatever wounds it may bring, even unto the death, is but a thrilling adventure, and other war work, there and everywhere, is mere playing at service.

Two of Millions.

"These women are the types of millions of women in France and in America, and when I contemplate their service, their sweetness, and their uncomplaining sacrifice I feel for all others and myself the deep compassion of utter unworthiness. And when I contemplate their devotion and witness all around me here in this blessed land able-bodied men doing unnecessary things, and pampered women dawdling in beauty parlors, I feel an unspeakable contempt and wish that I might have the power to condemn to hard labor all such miserable slackers, who are unworthy of the freedom for which millions of men are dying and millions of women are working and weeping.

"But I have not the privilege this evening of indulging in further comment upon these engaging comparisons. I am called upon to speak more particularly of the achievements, responsibilities, and burdens of the American farmer and the American farmer's wife. Let me assure you that the New York farmer's wife to whom I have alluded is by no means an exception among the 6,000,000 or more of farm women in the United States. Day by day, remote from the observation of the thronging cities, these six or seven million farm families, in the face of perplexities and difficulties greater, I believe, than the perplexities and difficulties of any commercial or manufacturing undertaking, are feeding and clothing our more than 100,000,000 population and a large part of the battling world besides.

"The farm has contributed its due share of man power to the Army and in addition has contributed an undue share of man power to the industries of the city because the young man of the country has been attracted by the high wages and the allurements of city life. The farmers, who were moved by the country's war demand for increased food, have been putting in extra hours and have been resorting to all kinds of emergency devices of exchanging labor with neighbors and of utilizing their women and children for tasks that ordinarily only men are called upon to perform. In the face of these difficulties the farmers of the United States and their families in 1917, although they had made their plans, increased their acreage by 23,000,000 acres and their gross yield of the principal food products by a full billion bushels. In 1918 they had continued to suffer the loss of man power as in the first year of the war, but they persevered and contrived to plant 9,000,000 acres more in 1918 than they had planted in 1917, and the planting of wheat this fall is greater than it was last fall.

The Effect of Peace.

"Now peace appears to be at hand, but the immediate effect perhaps will be to increase the demand for present supplies, for the moment we conclude peace with the central powers they will be in the market for our food and they and half the world around them are hungry after four years of privation. There are some supplies in South America and Australia which could not be moved heretofore because of limited shipping. These, perhaps, may now be released, but I can not think they will much more than fill the void in middle Europe. As to the year 1919, it is probable that immediate demobilization will release men enough in Europe to increase cereal production there materially over 1918, but there is scarcely a doubt that this country will

be called upon for continuing large supplies of meats and fats.

"While European demobilization may be effected immediately, 2,000,000 men in France can hardly be demobilized in time to restore normal farm labor conditions for the next year's planting and cultivation. On account of the labor situation on the farms we were enabled to harvest the crops of 1918 only by calling upon men of farm experience residing in the towns and cities to go out into the country and help the farmers with their tasks. In many places in the wheat belt twilight squads were organized; business men left their offices at 4 o'clock and went out and worked in the fields until 9. In many of the fruit regions the whole population went out and helped pick the berries or the apples. In some places stores were closed for a day or two during the week; in other places stores were closed a half day for a whole week or for two whole weeks; in other places two or three days during the week were given by the clerks and the porters around the stores and the shops. These activities are not so likely to be maintained under peace next year as they were under war patriotism last year. Very soon we shall come to the basis of agricultural production solely for the profit it offers.

"We must remember that several years will be required to bring about a readjustment of economic and industrial conditions. Many whole countries have been devastated; their labor has been more or less decimated and the demand for the physical reconstruction of the cities, of roads and of public works will be so great and wages probably so high that it may come to pass that few people comparatively will be inclined to go back to the farm. It is altogether possible, therefore, that for a few years following the complete restoration of peace there will be a lack of normal production. Farmers and their families who have exerted themselves to an unusual extent to produce for war purposes may not be so much inclined to exert themselves to an unusual extent in peace times. The impulse or the motive of patriotism will have been removed, or at least will be no more than the ordinary human concern for the welfare of the whole brotherhood of man. That is a very beautiful sentiment, but it does not always work to the stimulation of extraordinary energy.

How City People Are Concerned.

"City people, therefore, may well begin to inquire what will happen to them in the contingency of reduced production for the post bellum period. Under normal conditions the price or the prospective profit of an undertaking is the mainspring of action. With continuing high wages and with unabated attractions in the city places it may be a long time before full production is restored in the rural places. Indeed, it is by no means impossible that only the stimulation of extraordinarily high prices for food will bring about the necessary production. It may come to pass that farming will become so profitable that city people will be induced to undertake it as a livelihood in spite of its disadvantages and its isolation; in fact, that is the surest means of restoring the equilibrium between country and city, the disturbance of which has caused so much lamentation among idealists and sociological leaders.

"We have been talking a long time about stopping the flow of the people from the country to the city. Possibly high prices for food may cause a reversal of the tide of movement and city people will seek the country for its profits as heretofore country people have sought the city for the exceptional and spectacular profits and the luxurious life that the cities offer.

"After all, in the long range of experience, nothing so surely and so justly balances occupation, industry, and gain as the free play of human forces and human aspirations. In war times, as a matter of national necessity, we may be compelled to resort to the artifices of price regulation on the one hand or price stimulation on the other, but in normal times the surest and the safest regulator of inequality is self-interest and self-protection in full liberty of personal activity and free choice. In such times the only justification for the exercise of governmental powers of control is in restraint of monopoly or combination of men to oppress their fellows.

Farm Prices and Retail Prices.

"But there is much that we can do to eliminate waste and needless expense and thereby to reduce comparatively the cost of living without reducing proportionately the rewards of the producers. We have made some progress during the last few years in reducing the cost of distribution of food products from the farm to the table, yet much remains to be done. In 1915 the ratio of the farm price to the retail price on several of the principal food products was as follows:

"Wheat, 59; potatoes, 60; onions, 46; beans, 60; eggs, 59; hens, 59; beef cattle, 47; hogs, 34.

"In July, 1918, the ratios were:

"Wheat, 70; potatoes, 50; onions, 54; beans, 57; eggs, 67; hens, 61; beef cattle, 46; hogs, 42.

"On all except potatoes, beans, and beef cattle the ratio had increased, and on these it had decreased. On the average, there is some improvement, but yet it costs from 60 to 30 per cent of the retail value of the product to get it from the farm to the table. The cost with perishable products is much greater.

"Improvement has been effected during the last few years chiefly by the activities of the Bureau of Markets of the Department of Agriculture, by the marketing activities of the land-grant college extension forces, and by marketing bureaus of several of the States, all of which have made a beginning in the development of more intelligent and more economical marketing, better grading, wiser distribution, and more serviceable brokerage. Marketing is the business side of agriculture, and it is the side that has been the most neglected because, to a large extent, heretofore, commerce has made little attempt to serve agriculture in the true sense, but has taken advantage of the farmer's lack of information and aloofness from the currents of trade to exploit his products. This is too large a subject to permit the discussion of details, but I have said enough to show that it is a matter of common interest, the interest of the consumer as well as the producer, to develop better methods in marketing farm products. I raise here a moral as well as an economic question. The farmer on the one hand and the consumer on the other are entitled to fair service and fair prices. The necessary middleman is entitled to fair profit, but I think it is not necessary to particularize for the sake of demonstrating the truth of the statement that many of the transactions between the farmer and the consumers are unnecessary and wasteful, and some of them are mere sharp practice which should not be countenanced in honorable commerce.

Society's Sound Basis.

"But my concern for agriculture is deeper than a solicitude for the outcome of the present emergency. I believe with my whole mind and heart that a prosperous, cultured, and contented husbandry is the only sound basis of a wholesome and enduring society. The production of food and raiment is the first necessity of existence, and it is a monstrous social injustice for the creators of the means of subsistence as a whole or as a class to receive less of the comforts of life than the distributors of their products. Such injustice long practiced will bring retribution. It has always been so. Where cities prosper and rural places stagnate there is industrial, political, and social ill health, and sooner or later there will be deterioration and collapse in the body politic and the body social.

"I am far from urging people to rush heedlessly to the country without training or equipment for farming. The business of agriculture is a serious business.

It is not mere drudgery, although it requires much hard labor, but it involves all of the animal and plant sciences. Indeed, it is the process of re-creation, so to speak, because it takes the dull and inert substances of the earth and converts them into things of use and beauty. It is an art, a vocation, and an industry, and it is not to be learned in a day or a week. It does not offer the hope of very great fortune or of quick riches, but it does offer to the industrious, the intelligent, the patient, a good living and a fair accumulation. It is a wholesome business for wholesome people.

"However, I do raise the question whether many city people might not greatly benefit their condition by seeking work and opportunity in the country instead of in these congested centers. I was down on Long Island last summer visiting a friend in a region of considerable potato production, where I found the farmers in great need of labor, and many of them had great difficulty in saving their crops. I spent the evening in New York City on my way back to Washington, and was in the company of two or three young ladies who were social-service workers here. I listened with considerable interest to the recital of one of them relating to the difficulties and hardships of a large class of people with whom she had to deal as a charity worker; their little businesses and occupations had been upset by the war and many of them were in real distress. I told her that the farmers within a few miles of New York City were eager to obtain laborers and were willing to pay them a fair wage and furnish good housing conditions.

"'But,' the young lady said, 'these people do not wish to leave the city. They do not like to live on the farm. They prefer to remain here.' I said: 'If there is no labor here for them of the kind for which they are trained and there is labor for them in the country of a kind which they can do, do you not think that you should encourage them to go to the country?' She insisted that they should be maintained here by charity or by paying them larger wages than the times and conditions demanded. She had the view, which many city people have, that by some means the land ought to be made to produce and the producers ought to be willing to put themselves to extraordinary efforts in order that city dwellers might have plenty. Now, that is an altogether perverted view of economics and sociology and industry.

No Food Without Effort.

"This is a world of struggle; we need not expect to have things without effort, as we wish them to be, but we must accept things as they are. If more people go to the cities than are needed in the cities, then the surplus must find employment elsewhere or must be content to suffer privation. If the country has fewer workers than it needs, then those dwelling in the cities must pay the higher prices which are due to a greater demand than the supply of food. Law can do many things to correct evil conditions in cities. Most of all, the law should restrain the strong from oppressing the weak and should restrain one class from exploiting another class, but no system of law, no device of society, can provide abundance from scarcity, and no system of law and no device of society should undertake to compel one set of people to do more than a fair share or require them to sacrifice the articles or the commodities which are enhanced in value by scarcity due to the unwillingness of a large class of people to endure the hardships of production. The earth is broad; there are millions of untilled acres, and there is no patent right upon the processes of farming.

"That is all by way of looking a little into the future. The point of present comment is that the farmers of the United States, the best farmers in the world, have not spared themselves or their families in these trying times of war. They have followed the Government's program with less complaint, I believe, than I have heard from any other class. On the whole they have not prospered as much as the average war industry; some of them, indeed, have produced with scant profit and a few at a loss. They have been moved in the highest degree by the spirit of patriotism and sacrifice that has governed the great mass of our people in discharging the burdensome tasks of war. The farmer does not fall under the eye of ordinary observation; his work is not spectacular, but his performance is none the less heroic."

Howard S. Coe, Plant Scientist, Dies While on Trip in Field

Howard Sheldon Coe, Assistant Agronomist in the Office of Forage-Crop Investigations, Bureau of Plant Industry, died October 25 at Beaumont, Tex., from pneumonia following influenza. He was absent from Washington on a field trip at the time of the attack.

Mr. Coe was born at Orrville, Ohio, September 24, 1888. His education was completed at the Iowa State College of Agriculture, from which institution he received in 1915 the degree of Master of Science in Agriculture. While a student there he was Assistant Instructor in Botany for a portion of his time during three years. In September, 1913, he was appointed consulting botanist and plant pathologist at the South Dakota Experiment Station, which position he held until he entered the service of the United States Department of Agriculture, in July, 1914, as Scientific Assistant in Forage Crops.

He was the author of the following publications:

"Fungi of Ledges, Boone County, Iowa," 1912; "Weeds," South Dakota Agricultural Experiment Station Bulletin No. 150, 1914; "Hygienic Treatment of Orchards," South Dakota State Horticultural Society Annual Report, 1914; "Sweet Clover; Growing the Crop," U. S. Department of Agriculture, Farmers' Bulletin No. 797, 1917; "Sweet Clover Utilization," U. S. Department of Agriculture, Farmers' Bulletin No. 820, 1917; "Sweet Clover; Harvesting and Thrashing the Seed Crop," U. S. Department of Agriculture, Farmers' Bulletin No. 836, 1917; "An Annual Variety of *Melilotus Alba*," Journal of the American Society of Agronomy, Vol. IX, No. 8, 1917; "Origin of the Georgia and Alabama Varieties of Velvet Bean," Journal of the American Society of Agronomy, Vol. X, No. 4, 1918.

He was the joint author of the following:

"Red Clover Seed Production; Pollination Studies," U. S. Department of Agriculture, Bulletin No. 289, 1915; "Velvet Beans," U. S. Department of Agriculture, Farmers' Bulletin No. 962, 1918.

Mr. Coe was a member of the Iowa Academy of Sciences, the South Dakota State Horticultural Society, the American Society of Agronomy, the Phytopathological Society of America, and a fellow of the American Association for the Advancement of Science.

His recent studies have been mainly in connection with sweet clover, velvet beans, and the problem of permanent pastures in the South. He was held in high regard by his coworkers because of his scientific attainments and high moral character.

Mr. Coe resided at Cherrydale, Va. His widow, an infant son, and his mother survive.

LICE AND MITES.

The free use of an effective lice powder is always in order. Sodium fluorid makes an effective lice powder. In applying the powder hold the fowl by the feet, head down, and work the powder well down into the feathers. A dust bath is essential in ridding the fowls of lice.

The free use of kerosene or crude petroleum on the roosts and in the cracks will exterminate mites.

Whitewashing the interior of the house thoroughly once or twice a year helps to keep it sweet and clean.

STOCK SAVED BY DESTROYING ROVING PREDATORY ANIMALS

Federal and State Join Forces in Campaign Against Them in New Mexico

By Poisoning and Trapping on an Extensive Scale Thousands of Meat Animals Are Saved Annually at Small Cost

Prowling predatory animals are on the decrease in New Mexico, due to the intensive campaign waged by State and Federal forces of the Biological Survey, United States Department of Agriculture. One thousand and fifty-nine coyotes, 201 bobcats, 55 wolves, 13 mountain lions, and 7 bears, including 3 grizzlies, have been exterminated at a total cost of $11.20 an animal, without deducting fur values. This is considered a very small outlay for protection, in view of the fact that the average gray wolf kills $1,000 worth of live stock a year, while a mountain lion destroys $500 worth of stock, and the bobcat and coyote $50 worth each. On this basis the saving represented in this cooperative campaign is nearly nine times the amount of the gross expenditure.

Poisoning operations against predatory animals for the coming winter, from December to March, 1919, are planned on a scale so extensive as to include the main winter ranges of the State. With more carefully systematized methods and a larger and more dependable personnel at the disposal of the United States Bureau of Biological Survey than has heretofore been available, quick and permanent relief from coyotes and bobcats is promised for New Mexico stockmen, who are keenly interested in the project and are willing to cooperate in the work to the best of their ability.

To Increase Trapping Force.

During the recent summer 12 hunters paid by the State and 15 in the employ of the Federal Government have conducted an intensive trapping campaign. This force will be increased to 40 during the fall and winter trapping season, as at those seasons the animals are more easily captured, while the value of their fur gives an income to the State which almost pays for the cost of killing.

Illustrative of the great value of predatory animal control, during the three years of the Government's organization work in New Mexico the gray wolf population has been reduced from 300 individuals to less than 40. The entire extermination of such prowlers will mean great reduction in the local losses of live stock. Bears also have been very destructive in the Pecos Mountain region. During the recent grazing season they killed approximately 125 head of valuable cattle. Similar damage in the Black Range and in the Mogollon Mountains makes it evident that a total of at least 250 head of cattle as well as a large number of sheep were killed by bears. These facts are worthy of consideration, the Federal specialists point out, in view of the general and concerted efforts now under way on the part of sportsmen to enact legislation that will prevent trapping of bears or hunting them with the aid of dogs.

Ninety Per Cent of Prairie Dogs Killed.

Between April and August cooperative work in exterminating prairie dogs was conducted over 652,000 acres of infested land; more than 60 tons of poisoned grain being used and 3,403 landowners assisting in the work. An average of over 90 per cent of the prairie dogs on the treated areas have been killed; in many places extermination has been complete. Practically all the crop areas subject to damage by prairie dogs have been treated, amounting to 400,000 acres. The value of this work is evidenced from the fact that on the untreated land the total loss of the crop, or at least a 50 per cent loss, often occurs as a result of prairie-dog infestation. It is estimated that the crop-saving effected this year from prairie-dog control amounts to approximately $500,000.

On the range lands of New Mexico 252,000 acres have been treated with poison, while the plans are complete to extend this control as rapidly as possible over 1,500,000 acres. As a rule, the average cost of initial treatment on range areas has been less than 3½ cents an acre.

MORE DRAFT ADVISERS ARE NAMED TO PRESENT NEEDS FOR FARM HELP

The Department of Agriculture has announced the appointment of the following men to act with district draft boards of Alaska and Hawaii as advisers regarding agricultural needs:

Thomas Knudson, agricultural adviser to district board, division 1, Juneau, Alaska.

M. D. Snodgrass, agricultural adviser to district board No. 4, Fairbanks, Alaska.

Albert Horner, care district draft board, Honolulu.

The agricultural advisers are not to be members of the district boards, but are to furnish to the boards facts relative to farm labor requirements, not only of their own districts but of the entire country. Such information will be supplied to the advisers by the Department of Agriculture. The advisers also may concern themselves with individual cases before the district board. County agents of the Department of Agriculture have been supplied with questionnaires to be sent out for the purpose of securing facts about the farm labor needs in the counties.

DECREASED WOOL STOCKS REPORTED BY DEALERS AND MANUFACTURERS

Stocks of wool in hands of dealers and manufacturers on September 30, 1918, were about 182,000,000 pounds grease equivalent less than on September 30, 1917. With all figures reduced to a grease-equivalent basis, stocks as given by the Bureau of Markets were, September 30, 1918, 468,000,000 pounds, compared with 494,000,000 pounds on June 30, 1918, and 650,000,000 pounds on September 30, last year.

Stocks reported by classes in pounds on September 30, 1918, were: grease, 321,558,794; scoured, 29,162,687; pulled, 19,150,488; tops, 12,635,421; and noils, 16,122,871. The year before stocks were: grease, 388,594,596; scoured, 64,635,849; pulled, 24,330,015; tops, 23,122,825; and noils, 17,944,426.

Out of 1,118 concerns, reports from all but 9 are included in the totals. The detailed quarterly wool stock report will contain an added feature in the form of a comparison of the stocks and number of firms reporting each class and grade of domestic and foreign wool. Copies may be obtained from the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for inspector of dairy products, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or elsewhere, at $1,800 to $2,400 a year.

Assistant in transportation, grade 1, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salaries ranging from $1,800 to $2,700 a year.

Applicants for the above examinations should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistant in market business practice, grade 2, for both men and women, on December 4, 1918. Several vacancies in the Bureau of Markets, Department of Agriculture, with headquarters in Washington, D. C., at entrance salaries ranging from $1,200 to $1,800 a year, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Farm Bureaus Back Nation's War Program.

That the final responsibility for meeting the food needs of the Nation and the world rests upon the individual farmers in every community is the basis of a farm bureau membership campaign planned for the week of November 25 by farm-bureau committeemen in New York State. Quotas of membership will be assigned to every county, and the county quota will be apportioned to the communities. The campaign is not for the adding of mere names to the membership roll, but for the enlisting of farmers who believe in a sound agricultural war program and will support it.

Iowa Boys Raise Big Baby Beeves.

At the recent Iowa State Fair 111 excellent baby beeves were exhibited by 99 members of the boys' and girls' clubs of the State. Charles Ryan, of Irwin, with his grade Angus steer, "Reddie" was awarded the championship, while this same calf also won the premier honors in the grade Angus division. Charles's prize money amounted to $75. After the show the baby beeves were sold at auction, the animals averaging 967 pounds in weight and selling for an average price of $18.30 a hundredweight. Each calf brought an average of $177.08, or a total for the lot of $16,823.73. At the Sioux City Interstate Fair 39 baby beeves were exhibited by 35 members of boys' and girls' clubs. These animals were sold at auction for an average price of $187.49, the top price being $26 a hundredweight. Watson Davis, of Castana, won first place with a grade Angus steer and captured second honors with another steer in the fat Hereford class. Earl R. Buckland, of Mapleton, who won the championship on baby beeves in 1917, exhibited four calves and won second, ninth, and eleventh places in the special class and first, second, and the championship in the fat Shorthorn class, making his total winnings $85. These results indicate that the coming generation will uphold the honor of the Hawkeye State in banner beef production.

How War Cuts Road Work.

Indicating how the war-time policy of restricting highway construction to projects of military or great economic importance has been enforced, the Bureau of Public Roads announces that from the day in January, 1918, when the Secretary of Agriculture called upon the States to conserve money, labor, transportation, and materials as far as possible, to September 30, the payments on Federal-aid post-road projects aggregated $852,943.84, or less than one-thirtieth of the amount which theoretically could have been paid in that period. In the administration of the Federal-aid road act, 691 projects, involving construction of 7,377.83 miles, at a total estimated cost of $52,673,898.74, of which Federal aid comprised $19,843,315.02, were approved by the Secretary of Agriculture in the period from July 11, 1916, when the act became effective, to October 1, 1918. The total amount of Federal aid available to October 1, after deducting 3 per cent for administrative purposes, was $29,100,000.

Liberty Flocks for California.

Four thousand sheep have already been placed on California farms in a campaign recently initiated by the farm bureau counties of that State. The farm bureaus will take large bands of sheep from the grass ranges and place them in small "Liberty flocks" on individual farms. The grass ranges have been so depleted, owing to two successive dry seasons, that many of the sheep would die, due to pasture shortage, if some other provision were not made for them. "Liberty flocks" is the proper designation for these bands which will provide food and clothing for our Army.

Dried Fruits Instead of Candy.

Home cook-stove dryers in Oregon are considered a very necessary piece of furniture by the women in home-demonstration agent counties, where they have learned of the many uses. In one section dainty boxes of home-dried fruits have been prepared for Christmas gifts and to send to the boys in camps and at the front. Instead of candy, the children of this same section use the dried fruits to satisfy their natural craving for sweets.

Weather Forecasts May Save Cattle.

Cattlemen in the West and Southwest may save thousands of dollars and many thousand pounds of meat during the winter season if they will watch weather forecasts, according to officials of the Weather Bureau. They should give attention not only to the regular forecasts but to the special daily forecasts issued by Weather Bureau stations in cities and towns of considerable size, during the winter in regard to minimum temperatures expected to occur within a shipping radius of one day or two days of the station. In northwestern Texas last winter a number of herds of cattle, aggregating many thousand dollars in value, died from exposure to a destructive cold wave which had been forecast by the Weather Bureau and warnings of which had been disseminated through the threatened region.

Agent Gets Water for Suffering Rice.

One thousand acres of rice will be carried over the emergency peak, with a saving of about $135,000, as the result of a survey of the rice situation made by the county agent of Stanislaus County, Cal. A report of this survey, showing the imperative need of more water, was made by the agent at a special session of the County Council of Defense. The remainder of the irrigation water in the Modesto Irrigation District was promised to the rice men by the district directors as a result of the agent's report.

Women Keeping Household Accounts.

In an Oregon county where 710 women enrolled in the classes and clubs organized by the home demonstration agent 233 household account books were placed as a result of the activity of the agent in creating interest in thrift and home management.

Makes Tests for Concrete Ships.

In cooperation with the Concrete Ship Department of the Shipping Board, the laboratory of the Bureau of Public Roads of the U. S. Department of Agriculture has made several series of tests in order to obtain desired information looking to the safer design of concrete ships, a part of America's war program.

Weather Forecasts for Motor Routes.

The Weather Bureau of the U. S. Department of Agriculture has arranged, in cooperation with the State Highway Commission of Pennsylvania, to aid the automobile and motor-truck

traffic during the coming winter over the Lincoln Highway between Pittsburgh and Harrisburg by giving out daily information of the weather conditions prevailing over the route and issuing weather forecasts and warnings of heavy snows and cold waves for the region traversed. The plan is for the assistant superintendents of highways at points along the route to report to the Weather Bureau office at Pittsburgh at 8 o'clock each morning by telephone or telegraph the depth of snow or ice on the highway, giving its general condition. These reports are published in the newspapers and furnished to the different automobile clubs, thus becoming available to automobile and motor-truck drivers passing over the highway. The forecasts and warnings are given public distribution and telegraphed to the superintendent of highways at Harrisburg, who gives instructions to his forces along the highway to make provisions for the anticipated weather conditions. This service was in operation last winter and gave great satisfaction. The Weather Bureau is ready to give similar service to other traffic routes as may be desired.

Better Stock is Booming in California.

The pure-bred live-stock business is increasing in California, a State which the layman usually associates with choice fruits and record grain crops rather than with registered live stock. The first live-stock show in the State will be held at San Francisco November 16 to 24, at which premiums worth $40,000 will be contested for by exhibitors of all classes of stock. More than 250 pure-bred beef cattle, 164 registered dairy animals, as well as 17 steers in the individual fat-steer class are already entered, while in the carload-lot class it is expected that six loads of cattle will compete. In addition the entries include 300 pure-bred hogs and 150 pure-bred sheep, together with several loads in the car-lot class.

Tennessee to Meet Wheat Increase.

Tennessee will do its part in increasing the wheat acreage, according to reports from that State to the States Relations Service of the U. S. Department of Agriculture. Farmers in Montgomery County have taken the initiative and feel positive they will be able to reach the 7,363 additional acreage asked for by the Government. Henry County, which was asked for a 5,000 increase, will give it. The method employed in that county was to allot the work to school communities. The county food administrator, the county superintendent of education, and the county agent decided what each school district was capable of, taking into consideration equipment, labor, and land available. The figures were verified by representative farmers, a chairman was chosen for each school community, meetings were then arranged, and, finally, pledges obtained to put the plan across. Each Tennessee county has been given a task equally as big.

"Raise-Two-More-Pigs" Campaign Successful.

Five thousand one hundred and five California farmers pledged themselves to keep 21,099 more pigs in 1918 as the result of a campaign carried on by farm bureaus to persuade every member to raise two more pigs than he would otherwise have done. The purpose of the campaign was to counteract the situation brought about by the high price of grain, which was resulting in the wholesale slaughter of brood sows and young pigs. Fourteen days after the campaign started the danger which threatened the hog industry of the Pacific coast was averted. In addition, the agitation and the publicity gained has increased the interest of both farmers and fruit growers in hog raising and has caused large breeders of hogs to keep up their stock.

Completing Military Highway Work.

Nine miles of concrete road between Alexandria, Va., and Camp Humphreys, Va., soon will be ready for use, marking the completion of planning and supervisory work done by engineers of the Bureau of Public Roads of the U. S. Department of Agriculture for the military authorities. The road from Alexandria to Camp Humphreys is the longest military highway outside of cantonments that has been planned and supervised by engineers of the bureau, although the total construction planned and supervised by these engineers aggregates several hundred miles and covers practically all the recognized types of construction, from sand clay to first-class bituminous surfaces and concrete roads. Seventeen highway engineers and one superintendent of construction were detailed to military work by the bureau in July, 1917, the period of their assignments varying from 3 to 15 months.

Farm Bureaus Avert Fire Losses.

Fire damage in California this year is only 40 per cent of that of previous years, fire underwriters state, due to the work of fire companies initiated by the farm bureaus. To avert a threatened loss of foodstuffs through fire, the bureaus organized local rural fire companies in 366 farm-bureau centers of the State. Of these, 257 companies purchased automobile trailers, containing fire-fighting equipment for grain and grass fires, and 6,391 farmers enlisted in rural fire companies which covered a territory of 15,012 square miles. The loss in California from grain and grass fires was $750,000 a year before sabotage and pro-Germanism increased the fire risks, and it is probable that at least half a million dollars' worth of foodstuffs has been saved by these rural fire companies.

Prepares Dwelling and Storage Models.

Working drawings for farmhouses and bunk houses, designed to meet conditions in various sections of the country and assist in obtaining additional labor for farms, have been prepared by the Bureau of Public Roads of the U. S. Department of Agriculture. Working drawings have been prepared also for storage houses for small grains, corn, combined grain and corn, and other crops. Copies of these plans will be sent free on application to the Division of Rural Engineering of the bureau.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended November 2, 1918:

Potatoes: Acreage, Production, Foreign Trade, Supply, and Consumption. Department Bulletin 695.

Apple Powdery Mildew and Its Control in the Arid Regions of the Pacific Northwest. Department Bulletin 712.

A Study of Farming in Southwestern Kentucky. Department Bulletin 713.

Women's Rural Organizations and Their Activities. Department Bulletin 719.

A Preliminary Study of the Bleaching of Oats With Sulphur Dioxid. Department Bulletin 725.

Hints to Poultry Raisers. Reprint. Farmers' Bulletin 528.

Control of the Green Clover Worm in Alfalfa Fields. Farmers' Bulletin 982.

Wintering Bees in Cellars. Farmers' Bulletin 1014.

The Work of the Truckee-Carson Reclamation Project Experiment Farm in 1917. Bureau of Plant Industry. W. I. A. Circular 23.

Labor Saving in Live-Stock Production. Office of the Secretary Circular 122.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

The wool-production estimate of the Bureau of Crop Estimates makes the clip of 1918 amount to 257,921,000 pounds in the grease; pulled wool is not included. The clip of 1917, revised estimate, was 241,892,000 pounds.

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI NOVEMBER 20, 1918 No. 16

"SHORT" SELLING PROHIBITED AS COTTON DEMAND GROWS

Distribution Committee Expects Europe to Increase Orders 2,000,000 Bales.

Exchanges Notified That Government Will Stop Undue Speculation—End of War Makes Much Shipping Space Available

The Department of Agriculture calls attention to the following statement made on November 14 by Charles J. Brand, chairman of the Committee on Cotton Distribution and Chief of the Bureau of Markets, announcing the committee's action requiring the suspension of speculative "short" selling of cotton on the exchanges. It will be noted that the cotton committee, reflecting the views of the Department of Agriculture as well as of the cotton experts constituting the committee, confidently expect an increase in volume of exports and consumption of cotton.

Mr. Brand's statement follows:

"The signing of the armistice brings us suddenly to the threshold of the reconstruction era. Pending developments are of the utmost importance to the entire cotton world.

"The consequences of unfounded rumors that tend to promote vicious speculative activity and cause unjustified demoralization must be avoided as far as possible. In order that harmful violent price fluctuations may be checked the Committee on Cotton Distribution has ordered all speculative short selling on the New York and New Orleans Cotton Exchanges stopped, and, to make this order thoroughly effective, has required that no selling orders except in liquidation of long contracts be executed from any foreign country.

MORE SHIPPING AVAILABLE.

"The stoppage of sinkings by U-boats, the monthly increase in new ship tonnage, and the releasing of ships now engaged in supplying the fleets of the allies, together with the freeing of space previously used in sending munitions to Europe, will mean a large increase in available tonnage for cotton exports.

"The world's requirements of cotton to meet its increasing demands for clothing will henceforth be on a continuously ascending scale. Based on reports to this committee from the various foreign countries, we estimate their requirements and probable exports of cotton under present conditions to be over 2,000,000 bales in excess of last season's takings.

"Europe is almost denuded of cotton and cotton goods. The potential buying power of the world which will be aided and hastened by the establishment of the necessary credits will quickly assert itself."

EXCHANGES NOTIFIED.

The text of the telegram sent by Mr. Brand to the presidents of the New York and New Orleans Cotton Futures Exchanges prohibiting speculative "short" selling of cotton in those markets is as follows:

"Please read from the rostrum of your exchange before the opening Wednesday morning, post on the bulletin board, and send immediately to each member firm carrying contracts, the following notice: 'In order to curb undue speculative activity it becomes necessary at this time to prohibit further speculative short selling on the New York and New Orleans Cotton Exchanges, and the members of these exchanges are hereby notified that all further speculative short sales are prohibited. Hedge sales may be made on condition that an affidavit from the seller will follow that the sale is a bona fide hedge sale against the purchase of cotton. No selling orders from foreign countries except in liquidation of long contracts are to be executed.'"

> IN introducing county-agent work into a new county it is not so important to tell what has been accomplished elsewhere as it is to determine what needs doing in the county itself.

BERMUDA GRASS A GOOD FEED, BUT TROUBLESOME AS WEED

Makes Good Sod and Pasture but Menaces Cultivating Crops

Methods of Eradicating Plant Discussed—Shade and Winterkilling Found Valuable in Control Measures

Bermuda grass is one of the most valuable as well as one of the most troublesome grasses of the Southern States, according to Farmers' Bulletin 945, recently issued by the United States Department of Agriculture. This vigorous growing perennial spreads rapidly, making a thick sod which is well suited for pastures and lawns.

The same characteristics that make it so valuable also render it one of the principal weeds, the eradication of which is essential to the successful growing of intertilled crops. The plant has certain natural weaknesses, such as its inability to withstand shade and susceptibility of the rootstocks to winterkilling, which can easily be made use of in its eradication, according to the bulletin.

How Attack Is Made.

The most widely practiced and successful control measures, especially in the Southwestern States, is a combined attack upon these two weak points by alternating summer-shade crops, such as velvet beans and cowpeas, with intertilled crops, such as corn and cotton, keeping the soil occupied with growing oats or rye, with or without vetch, during the winter.

Hogs are also useful in eradicating this grass. They are fond of the rootstocks, and they will be aided greatly in the good work if the land is first plowed. A good system is to graze the land an entire season, continue the grazing the following season until midsummer, then plow shallow to expose the rootstock to the drying action of the sun and the persistent rooting of the hogs.

Bermuda grass may be winterkilled by exposing the rootstock system to freez-

ing, but this method is effective only in the northern part of the Bermuda grass area, as killing frosts do not ordinarily occur in the central and southern parts. In small areas, such as gardens, the rootstocks may be gathered, after the land has been plowed, with a rake or fork and burned. Where only small patches are infested they may be covered with heavy paper, preferably roofing paper, which should be weighted down. This so completely shades the plants that in about two months they will be killed.

Bermuda grass was at one time looked upon solely as a pest, but in view of the fact that it is exceedingly valuable for pasture, hay, and lawn purposes the plant has been widely utilized throughout the cotton belt, and its value is far in excess of the damage which it causes.

British Officer Says Cavalry Horses Are Scarce in America

Brig. Gen. T. R. F. Bate, of the British Army, regarded as a competent authority on cavalry horses, in an article appearing in a London magazine on "Buying British Remounts in America," says:

"Experts have known for some time and our purchasing activities have proved beyond contention that the cavalry horse as we know him in England does not exist in North America in any numbers which are appreciable for modern war requirements. What have been bought as cavalry are the best that can be procured, but that is all. The cavalry horse is not a commercial factor in America, and that, in a nutshell, is the reason of the scarcity of the type."

UNLAWFUL TO KILL THESE BIRDS.

The Federal migratory bird treaty act regulations prohibit throughout the United States the killing at any time of the following birds:

Band-tailed pigeon; common ground doves and scaled doves; little brown, sandhill, and whooping cranes; wood duck, swans; curlews, willet, upland plover, and all shore birds (except the black-bellied and golden plovers, Wilson snipe or jacksnipe, woodcock, and the greater and lesser yellowlegs); bobolinks, catbirds, chicadees, cuckoos, flickers, flycatchers, grossbeaks, humming birds, kinglets, martins, meadow larks, nighthawks or bull-bats, nuthatches, orioles, robins, shrikes, swallows, swifts, tanagers, titmice, thrushes, vireos, warblers, waxwings, whip-poor-wills, woodpeckers, and wrens, and all other perching birds which feed entirely or chiefly on insects; and also auks, auklets, bitterns, fulmars, gannets, grebes, guillemots, gulls, herons, jaegers, loons, murres, petrels, puffins, shearwaters, and terns.

The United States Department of Agriculture is at the service of every farmer. Not every farmer, however, takes advantage of that service. The department's advice costs the farmer nothing, but the assistance given may save him a great deal—both in time and money.

Corn Growers Asked to Aid Authorities in Stamping out Destructive Pest

Future corn crops of the United States will be exposed to the European corn borer, the most destructive enemy of maize which has ever invaded this country, unless growers cooperate actively with Federal and State authorities in stamping out the pest, say entomologists of the United States Department of Agriculture. The initial outbreak of the borer was discovered in Massachusetts, near Boston, and at present the territory in which it appears is confined to eastern Massachusetts. If this pest should escape to the corn belt it undoubtedly will become the most destructive enemy of corn which has ever occurred in the United States, because its capabilities of inflicting injury to the crop are almost limitless. State and Federal authorities are striving to destroy the insect and to control and confine it within the present infested area.

Carefully Examine Cornfields.

Corn growers and other interested persons are requested to cooperate with these authorities by carefully examining cornfields, stalks of corn, and dried vegetation in such fields to determine whether the insect is present. Stalks and stems should be split open from end to end, and if a slender, dirty white or pinkish, naked caterpillar is discovered therein the examiner should communicate with the State entomologist, State experiment station, State board of agriculture, or the Bureau of Entomology, United States Department of Agriculture, Washington, D. C.

The parent of the European corn borer is a yellowish moth measuring about 1 inch across the expanded wings. It lays its eggs upon the corn leaves or leaves of grasses or weeds in or near the cornfields. These eggs soon hatch and young caterpillars appear and begin feeding on near-by leaves. Later they crawl to the unfolding flower heads of the corn and begin their work of destruction. They frequently bore into the tassel stem, devouring its internal portions to such an extent that the tassel will fall off. This phase of injury is readily seen and is usually the first indication of the presence of this borer. When the caterpillars become larger they attack the main stalks at the base of the leaves, and it is not unusual to find more than 25 insects attacking a single stalk of corn. After the ears have formed they are promptly attacked and very seriously injured.

Destruction by Burning Only Satisfactory Method

The caterpillar is almost naked, slender, pinkish or dirty white in color, and about three-fourths of an inch in length. Almost invariably it is to be found within the stalk or other portions of the plant, as its instinct causes the caterpillar to hide away within the plant upon which it may be feeding. When the caterpillars mature they pupate within the stalks, and about August 1, in the neighborhood of Boston, a new brood of moths emerges to lay their eggs upon the corn, and thus continue the work of destruction. The caterpillars resulting from this summer brood of moths live throughout the winter, hidden within the dead and dried stalks of corn, stems of grass, weeds, and garden vegetables, where even the coldest weather does not injure them in the least. However, at this time they may easily be destroyed by burning such vegetation while it is dry and in good condition to ignite readily. It is more important that all grasses and large weeds which have grown in and near cornfields be burned, because these may harbor thousands of caterpillars. Destruction of the insects by burning, as described above, is the only satisfactory means for destroying the pest which has yet been discovered. All efforts to poison the insects have proven both expensive and unavailing.

EARLY AND DWARF SORGHUMS FOUND TO BE SAFEST IN TEXAS PANHANDLE

While grain sorghums are the chief feed crops in the southern portion of the Great Plains region where rainfall is limited, only well-adapted varieties produce good yields in the less favorable seasons, according to the United States Department of Agriculture. Since 1904 the department has conducted experiments in growing sorghum in the Panhandle sec-

tion of Texas, and one of the important features of the work has been to determine what varieties can be depended upon in all seasons. Bulletin 698, "Grain Sorghum Experiments in the Panhandle of Texas," just published by the department, presents the results obtained in the 9-year period from 1908 to 1916, inclusive.

Earliness is the most important single factor, according to the bulletin, in the varietal adaptation of grain-sorghums to the conditions obtaining in the high plains of that section. Dwarfness is the next most important factor, while the combination of the two is extremely efficient in seasons of drought. Dwarf Milo, Dawn (dwarf) Kafir, and Sunrise (early) Kafir have proved well-adapted varieties, the first and second-named being especially well suited on the high, dry plains.

Lily Family Has "Black Sheep"— Stagger Grass Poisons Stock

The lily—symbol of all that is good and pure—has one member of its family that is poisonous—the "black sheep" of the family. To scientists this weed is known as Chroserma muscaetoxicum. To stockmen it is known by a number of names, including stagger grass, fly poison, crow poison, and fall poison. It is found in sandy woodland pastures from Long Island to Florida, and is known as far west as Arkansas. In experiments conducted by the United States Department of Agriculture, reported in Bulletin 710, just published, it was found that this plant is very poisonus to sheep and cattle. Reports from North Carolina state that horses and mules, but not swine, are also poisoned. Not much can be done in the way of medical remedies, says the bulletin, but doubtless a purgative would aid in eliminating the toxic substances from an animal which has eaten some of the weeds. The bulletin warns stock growers to inspect their grazing land and eradicate this weed by grubbing whenever possible.

MARKETING EGGS.

Market white-shelled and brown-shelled eggs in separate packages.

When selling eggs to the country merchant or cash buyer insist that the transaction be on the quality basis.

Ship or deliver eggs at least twice or three times weekly.

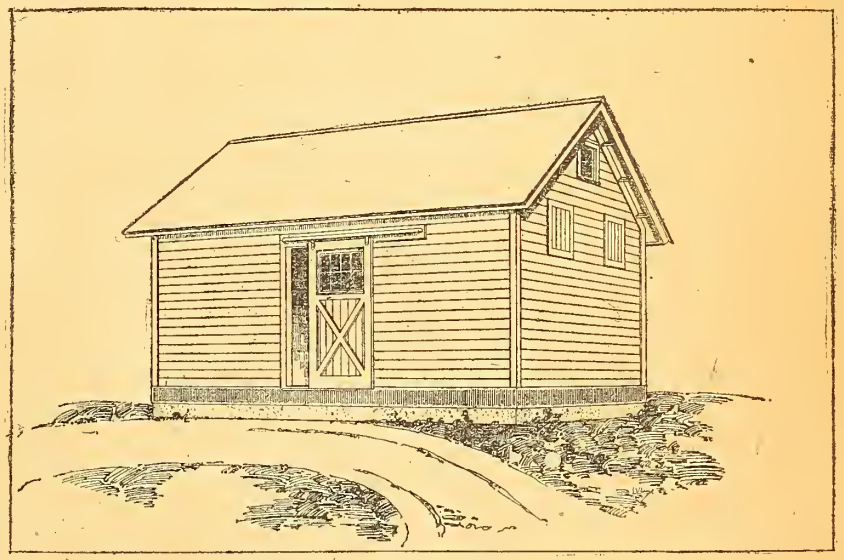
Small or dirty eggs should be used at home.

When taking eggs to market they should be protected from the sun's rays.

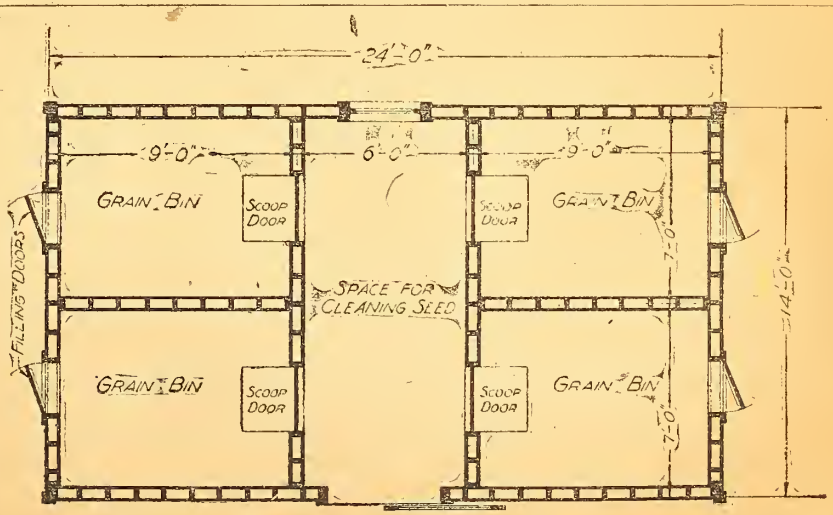
Infertile eggs will withstand marketing conditions much better than fertile eggs.

Provide Storage for Farm Grain— Department Gives Plans for Granary

In view of the present high prices of all grains it is profitable management for every general farmer to provide adequate and dependable storage for these valuable farm products. The Division of Rural Engineering of the Bureau of Public Roads, United States Department of Agriculture, has devised an excellent arrangement for a large granary adapted for the general grain farm. This storage is 24 by 14 feet in floor dimension and is subdivided into four bins, each of which is 7 by 9 feet, and has a capacity of 450 bushels. Each bin is provided with a door through which the grain may be distributed into the storage, while it also has a protected scoop door through which the grain can be delivered. The four bins front on an alleyway, which is 6 by 14 feet, where the seed can be fanned and cleaned or else treated against disease. In case of emergency, where the grain crop exceeds the permanent storage capacity, this space also may be partitioned off and utilized for storage purposes. The total capacity of the permanent bins is 1,800 bushels, while the emergency space also available in the central cleaning floor increases the total possible storage to over 2,100 bushels.



View of Granary Planned by Rural Engineers of Department of Agriculture.



Ground Plan Shows Excellent Arrangement of Granary.

Praises Petsai as Substitute for Head Lettuce—Has Many Advantages

The poet who said, "What's in a name?" evidently had no idea that, insofar as the important matter of food is concerned, prejudice could be aroused to such a point as to cause a mental aversion to, if not a positive condemnation of, a really delectable article of diet. Take the case of the Chinese cabbage, for example. Instinctively the gourmet shudders at the attempt to associate that name with a delicacy. Call it petsai (the Chinese name for it) and most probably his prejudice will change to desire; he will try it; like it.

Petsai was introduced by the United States Department of Agriculture from China. It is now grown in considerable quantities in Illinois, New Jersey, California, and other sections.

The testimony of unprejudiced people who have eaten petsai is all in its favor, and many who have eaten chop suey and liked it, not knowing of what it is composed, unwittingly have held a brief for petsai—one of the staple ingredients of that well-known and much-enjoyed Chinese-American dish.

To Americans lettuce has become the great leaf vegetable for salads. Throughout the year it is grown in some part or other of the country and shipped from great distances to our tables. It is grown under square miles of glass near the great cities and at a considerable expense for coal. It is estimated that 40,200 tons of lettuce is grown under glass every year, and that the value of this product is $9,648,000.

Petsai can be grown throughout the whole United States. It possesses not only all the good food qualities of lettuce, but also it has the advantage of being more economically grown—about one-half the cost of lettuce—by reason of its heavier yield. This feature alone should recommend it during these times.

PETSAI is a supplement of lettuce recommended by the Department of Agriculture, not a substitute for it.

Petsai can be grown throughout the whole country and at about half the expense of lettuce.

It keeps better than lettuce and, pound for pound, probably contains as much of the valuable substance for which we eat lettuce.

In transit it "holds up" better than lettuce.

Petsai is one of the staple ingredients of chop suey, a dish that thousands of Americans have eaten and liked.

Technically petsai is not a cabbage, and the unfortunate use of the name Chinese cabbage should not create prejudice against it.

As a garnish it is preferable to lettuce; it retains its crispness in flavor as well as in appearance.

Petsai is grown from seed, just as lettuce is grown. It attains the height of 12 to 14 inches and when ready to serve it resembles the heart of lettuce.

Apply to your seedsman for seed.

PROTECTION GIVEN MIGRATORY BIRDS BY AMENDMENTS TO BIRD-TREATY ACT

The United States Department of Agriculture announces the promulgation of amendments and additions to the Migratory Bird Treaty Act Regulations effective October 25, 1918.

Hereafter the open season for black-bellied and golden plovers and greater and lesser yellowlegs in Texas will be from September 1 to December 15. Another change prescribes a daily bag limit of 50 sora to a person in addition to the bag limit of not to exceed 25 for other rails, coots, and gallinules.

An amendment of Regulation No. 6 has the effect of removing the limitation on the number of birds that may be transported within a State during the Federal open season. The export of migratory game birds is limited to two days' bag limit during any one calendar week of the Federal season. Persons must comply with State laws further restricting the shipment or transportation of migratory birds.

An amendment to paragraph 2 of Regulation No. 8, which is of great interest to breeders of game, permits migratory water fowl raised in domestication to be killed by shooting during the respective open seasons for waterfowl, and the sale thereof subject to State laws; but after March 31, 1919, such waterfowl, killed by shooting, can not be sold or purchased unless each bird, before attaining the age of 4 weeks, shall have had removed from the web of one foot a portion thereof in the form of a "V" large enough to make a permanent well-defined mark, which shall be sufficient to identify it as a bird raised in domestication.

Another amendment provides that the plumage and skins of migratory game birds legally killed may be possessed and transported without a Federal permit. Provision is also made for the issuance of special permits authorizing taxidermists to possess, buy, sell, and transport migratory birds.

Two new regulations have been added. Regulation No. 11 provides for the issuance of permits authorizing persons to sell migratory game birds lawfully killed and by them lawfully held in cold storage on July 31, 1918. Such birds may be sold under permit until March 31, 1919.

Another new regulation is as follows: "Nothing in these regulations shall be construed to permit the taking, possession, sale, purchase, or transportation of migratory birds, their nests and eggs contrary to the laws and regulations of any State, Territory, or District made for the purpose of giving further protection to migratory birds, their nests, and eggs when such laws and regulations are not inconsistent with the convention between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916, or the migratory bird treaty act, and do not extend the open seasons for such birds beyond the dates prescribed by these regulations." This regulation is a restatement of the substance of section 7 of the migratory bird treaty act, and is intended to remove the confusion and uncertainty that exists in regard to the effect of the Federal law and regulations on State game laws.

Oleomargarin Hearing to Consider Definitions and Standards

A public hearing to consider definitions and standards for oleomargarin will be held by the Joint Committee on Definitions and Standards at 10 a. m., December 4, at the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

All persons interested are invited to attend this hearing and present any facts that will assist the committee in arriving at correct conclusions on the subject. Those who desire may present their views in writing, on or before the date of the hearing, to the secretary of the committee, Bureau of Chemistry, Washington, D. C. The hearing will be held at the Bureau of Chemistry building, 216 Thirteenth Street SW.

The Joint Committee on Definitions and Standards is composed of representatives of the United States Department of Agriculture, the Association of American Dairy, Food and Drug Officials, and the Association of Official Agricultural Chemists.

More Profits From Larger Farms— Surveys Shows Factors of Success

However skillful or energetic a farmer may be, or however fertile his land, he can not hope for great profits in general farming if his business is on a small scale, according to Bulletin 713, recently published by the United States Department of Agriculture, covering a report of a survey of 342 farms in southwestern Kentucky. While crop yields, returns from live stock, type of farming, diversity, and the selection and proportioning of crops and live stock are factors which directly affect farm profits, the success of the business in general farming depends to a very large degree upon its size. It should be kept in mind, the bulletin adds, that maintaining soil fertility is as important as obtaining profits, and this is done on the ordinary diversified farms to a large extent by crop rotations and a proper system of keeping live stock.

In the area surveyed 29 farmers on farms of less than 100 acres made an average labor income of only $81; 60 farms, averaging 286 acres, averaged $356; and 46 farms, averaging 715 acres, averaged $1,133 labor income. The farms showing highest earnings per acre were better stocked, had greater diversity, less idle and waste land, and better economy in utilization of horse labor. Farms over 400 acres in size averaged about 120 productive days' work per horse, while farms under 100 acres averaged but about 80 days. The cost of man labor was also lower on the large farms. Many farmers were able to increase the size of their business and add to their income by renting additional land.

Next in importance to size of business in profitable farming is crop yield. While high yields are essential they should be made economically for it is possible to secure them at too great expense. In the section surveyed the keeping of live stock is one of the most important factors in maintaining good crop yields. This practice also enables the utilization of waste products which are fed to stock, and increases the value of grain and feedstuffs on the farm by feeding them. Generally speaking, the bulletin states, on large and medium-sized farms from one-half to two-thirds of the total farm receipts should come from live stock.

In addition to general information relative to successful farm practices in the area surveyed, the bulletin describes in detail the farm management of five farms which, in general, illustrate good standards for organization in the section.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces open competitive examination for scientific assistant in the economics of marketing, for both men and women, on December 4 and 5, 1918. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field will be filled from this examination. The usual entrance salary for this position ranges from $1,200 to $1,500 a year, depending upon the qualifications of the appointee; but persons showing in the examination that they are unusually qualified are occasionally appointed at higher salaries, not to exceed $1,800 a year.

Assistant in warehouse investigations, Grade 2, for men only, to fill present and future vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salary ranging from $1,200 to $1,800 a year. Date of examination December 4, 1918.

Assistant in transportation, Grade 2, for both men and women, on December 4, 1918. Five vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., will be filled from this examination. Salary $1,200 to $1,800 a year.

Applicants for the above examinations should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended November 9, 1918:

Ways of Making Southern Mountain Farms More Productive. Farmers' Bulletin 905.

Lining and Loading Cars of Potatoes for Protection from Cold. Bureau of Markets Document 17.

More Poultry Needed. Animal Husbandry Circular G-29.

Handling the 1918 Wheat Harvest in Kansas. Office of the Secretary, Circular 121.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

FOOD AND FARMING

The wheat field of the United States in 1918 was four-fifths the size of the Kingdom of Austria and more than eight times the size of Belgium.

One fifth of the world's crop of wheat was exported during the five years before the war, 7 per cent of the corn, 34 per cent of the tobacco, 12 per cent of the rice, 66 per cent of the cotton, and 40 per cent of the sugar.

When the Indians taught the white settlers of this country how to raise corn, no flight of the imagination could have foreseen the crop of 1918, covering nearly 178,000 square miles, or nearly as much land as there is in Germany.

Mean wheat production per acre in the 15 years, 1899–1913, was 42.5 bushels in Denmark, 35.4 bushels in Ireland, 35.1 bushels in Belgium, 31.5 bushels in Great Britain, 29.7 bushels in Germany, 20.2 bushels in France, 19.1 bushels in Austria, 18.1 bushels in Hungary, 16.7 bushels in Roumania, and 14.1 bushels in the United States. Bushels of measure are taken for Denmark, France, Great Britain, Ireland, and Roumania; of 60 pounds for the other countries.

Per capita consumption of wheat for all purposes during the 10 years, 1902–1911, averaged 8.80 bushels per year in France, 8.20 bushels in Belgium, 6.31 bushels in the United States, 6.21 bushels in Italy, 6.17 bushels in the United Kingdom, 4.60 bushels in Austria-Hungary, 4.29 bushels in the Netherlands, 3.38 bushels in Germany (rye consumption being high), 0.85 bushel in British India, and 0.52 bushel in Japan, rice consumption being high in the last two countries.

The large amount of low-grade cotton in the crop of 1917 is explained by the estimate that nearly a million bales were damaged by the frost. Of this amount about 550,000 bales were bollies, the remainder being either "snapped" or picked. Some of the cotton where there was no machinery for ginning bollies was beaten out with flails and afterwards ginned. The Bureau of Crop Estimates has recently estimated that there were 250,000 running bales of bolly cotton in Texas, 170,000 bales in Oklahoma, 40,000 bales each in Arkansas and Tennessee, and 50,000 bales in other States.

Potatoes should be handled carefully and not as though they were cobblestones. The potato is a living thing, with a protective skin, which it is able to keep intact if it has a fair chance.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Wood-Fuel Committees Urged.

To help meet the coal shortage the Forest Service of the United States Department of Agriculture urges that wood-fuel committees should be at once reorganized in every community where they have been allowed to lapse, and appointed if none exist. They are needed to do many things, such as finding total fuel needs, whether the reserve is adequate, and, where wood fuel can be obtained, pointing out means of getting it ready for use and organizing distribution and marketing. These committees will be very busy this winter, the Forest Service says, and will be able to perform good service for their communities in easing the blow of a fuel shortage.

Agricultural Knowledge by Motor Truck.

The problem of taking the doctrine of better farming and home economics to communities inaccessible by railroads is being solved in Alabama by the Alabama Polytechnic Institute, cooperating with the United States Department of Agriculture. Exhibits and demonstration material have been mounted on a motor truck and, accompanied by speakers and demonstrators, recently started on its initial trip for the purpose of teaching negro farmers in their own communities. The truck is known as a "Knapp Agricultural Truck," named in honor of the late Dr. Seaman A. Knapp, of the United States Department of Agriculture. Fourteen years ago Dr. B. T. Washington conceived the idea of fitting up a wagon known as the school on wheels. This outfit was drawn by mules and operated extensively and with much success in Macon County. The "Knapp Truck," an extension of the Booker Washington idea, has been motorized, and it is believed that similar movable schools will in the near future be operated in many parts of the South, vitalizing agricultural extension work in rural districts which are accessible in no other way.

Progress of Tick Eradication Shown.

To show the progress of the tick-eradication work the United States Department of Agriculture staged an exhibit at the Southern Land Congress held at Savannah, Ga., November 11 and 12. The exhibit showed that 1918 was a record year in freeing southern territory from the tick quarantine, 79,217 square miles being released. A map was included in the exhibit showing the territory originally in quarantine and the territory freed since it was established in 1906. Four field men of the department, who are employed in the tick-eradication work, and a representative from the Bureau of Animal Industry attended the congress.

Breed Better Horses, Specialists Advise.

According to reports received by the United States Department of Agriculture, the situation in the horse-breeding industry reveals the fact that there are many nondescript and plug horses glutting the markets. This condition, it is believed, affects the horse industry in general. The real good animals are still commanding satisfactory prices, but the misfits are being sold for considerably less than the cost of production. The saving of additional feed bills is said to be the motive which prompts the producer to dispose of this class of horses, regardless of price. One of the conclusions which the Department of Agriculture draws from the present situation is that indiscriminate breeding of horses is an unprofitable enterprise. It is essential, the department specialists add, that farmers use wise discrimination in selecting the proper type of stallions with which to mate their best mares and thus materially aid in producing only efficient horses which are capable of giving the service required of them and which consume less valuable feed for the amount of work performed. Such horses have a ready market and always bring good prices. It is imperative that the breeder who proposes to compete with the domestic and foreign demands after the war should begin now to stock up his stables with desirable better-bred horses.

State Help in Estimates Sought.

State field agents and crop specialists of the Bureau of Crop Estimates from States east of the Mississippi River and north of the Ohio and Potomac Rivers, including West Virginia, met recently in Lansing, Mich., and considered methods of improving the crop-reporting service, especially with reference to closer cooperating relations with the State boards of agriculture and State colleges of agriculture. It was brought out that in Wisconsin, where the State board of agriculture and State college of agriculture have been cooperating closely since the spring of 1917, complete and accurate data with respect to crops and live stock in each township have been collected and summarized through improvements in the collection of these statistics by tax assessors. As a result Wisconsin now has a complete farm census of the entire State. Ways of bringing about similar results in other States were considered. Officials of the State college of agriculture and department of agriculture of Michigan were present at the conference and offered valuable suggestions.

Poultry Workers Hold Conference.

Plans for carrying on poultry extension work next year were made at a conference held at Kansas City October 28, 29, and 30, attended by the United States Department of Agriculture district agents in the Emergency Poultry Campaign. The conference was called by Harry M. Lamon, in charge of poultry investigations of the Bureau of Animal Industry. Reports were made on this year's accomplishments, which showed that the department's campaign has been most effective in stimulating an increased production of poultry products.

War Gardens Aid Canteen Service.

Twenty-six war-garden chairmen in Knoxville, Tenn., held a curb market last summer. Wagons, automobiles, and drays brought in the produce, which sold from the curb from 7 o'clock to 11.30 o'clock in the morning. The money cleared has been used for the benefit of the canteen service of the Red Cross. The city home-demonstration agents had a table of canned products on display at the curb markets, gave Government bulletins, and answered questions concerning canning, wheatless recipes, and other food problems.

"Week-End" Baskets Marketed by Club.

One method which has proved most practicable in bringing the producers and consumers in this country nearer

together has been the "week-end" basket which goes from the farm to the city dweller. A home-demonstration club in Davidson county, Tenn., is marketing its surplus in these baskets. Ordinary peck baskets are used for the purpose and vegetables, small fruits, eggs, cottage cheese, butter, dressed chickens, etc., are packed in them. In the beginning instructions in dressing fowls for market was found necessary by the home-demonstration agent, as few of the farm women had done this work.

Giving Uncle Sam a Hand.

Friday, November 15, is going to be a red-letter day in Mississippi in so far as agricultural war work among boys is concerned. The governor of the State has issued a proclamation declaring that day "registration day for the boys of Mississippi who will be under 18 and not under 10 years of age on the 1st day of January, 1919," for enrollment "for the production of food and feed and for the performance of other necessary labor" in connection with war activities. Gov. Bilbo has appealed to the teachers, county superintendents of education, the county councils of defense, the county demonstration agents, and "all other interested persons" to do their full part in carrying out the proposed plans for freeing the world of the menace of the Hun. There is nothing obligatory about this movement; it is purely a call for the vigorous application of the energies of the boys in Mississippi in service that will be of inestimable value both to the State and Nation. Attractive posters and literature have been widely distributed over the State, and interesting programs, full of the spirit of patriotism and service, will engage the attention and elicit the hearty support of every school in Mississippi allied with agricultural work.

Farm Bureau Cooperates with Railroad.

Fertilizer for their orchards has been secured in a novel way by the members of the Placer County farm bureau, California, through an arrangement with the Southern Pacific Railroad Co. The company has agreed to permit returning stock cars to be sidetracked at convenient sidings where farmers can clean them out. The farmers thus not only secure a considerable amount of valuable manure but they perform a service for the railroads difficult to obtain under the present labor difficulties.

To Report Cold-Storage Spaces.

Owing to the necessity for obtaining large supplies of beef for the use of the Army and Navy at a time when it is available, the demands of the War and Navy Departments for cold-storage space are resulting in a shortage of space required for ordinary commercial uses. The Food Administration has requested the Department of Agriculture to render assistance in this emergency. Accordingly the Bureau of Markets is obtaining monthly reports from public cold-storage warehouses concerning cold-storage and freezing space, and will endeavor from time to time to answer inquiries from the trade concerning such space available in various sections of the country as indicated by reports received.

To Estimate Commercial Crops Closely.

The Chief of the Bureau of Crop Estimates has announced that in the future the bureau will endeavor to estimate more closely the commercial portion of crops sold from farms, the surplus or deficiency of which determines the prices of farm products. This is thought to be especially important with such crops as potatoes and beans. The bureau's estimates of commercial apple and peach crops have been highly commended by all who have had occasion to use them, it is stated.

Beet Tops Used for Ensilage.

An additional value of $35 an acre has resulted from ensiling sugar-beet tops in Ventura County, Cal. Formerly the tops were sold in the field to cattle and sheep owners at about $2 an acre. The new utilization means a great saving in feed. The farm bureau in Ventura County is carrying on a silo campaign, and plans have been laid for the construction of a number of beet silos this year.

Agricultural Displays in Show Windows.

The unique plan of using city show windows to instruct the public in growing better fruit and vegetables and in the storage of these products is reported by demonstration specialists in horticulture in Indiana. The plan has met with unqualified success. Merchants, the specialists say, are delighted to cooperate in donating the window space in which State horticulture extension men and leading fruit growers may make displays. Specimens of sprayed and unsprayed apples, which forcefully carry the lesson of proper spraying; the details in the construction of a barrel pit for the home storing of fruit and vegetables; different styles of packing apples in boxes, baskets, and barrels, together with neatly printed placards bearing pointers for fruit growers and gardeners are included in the displays. It is reported that the exhibits are attracting crowds of interested city people.

Farm Bureau Conducts Packing School.

Forty-eight students attended a fruit-packing school conducted by the Nevada County farm bureau in the building of the county canning association at Grass Valley, Cal., when pears first began to ripen. Although it was difficult to secure enough pears for that number of students, due to the lateness of the fruit crop this season, the school was a success, and fruit growers of Nevada County feel that they will have sufficient help to harvest their pear crop. Five of the students were hired immediately upon the close of the school.

How One Demonstration "Carried On."

The story of how an orchard demonstration begun in the face of much criticism in a locality where modern orchard practice was unknown and how it opened the eyes of the entire neighborhood to the possibilities of fruit growing is told by a State fruit specialist. The local county agent wanted the orchard demonstration, but the State specialist believed that it would be a waste of time to hold one in that particular community. Finally, he consented, after persistent urging on the part of the county agent. An apple orchard was pruned, sprayed, and otherwise cared for according to modern orchard practice, while the neighbors of the owner of the orchard ridiculed him for mutilating his trees and wasting time and money spraying them. As the season advanced and the demonstration orchard was the only one in the entire section which produced a crop of fruit, the neighbors who had at first sneered began to inquire how it had been done. After paying the successful grower $2.50 a bushel for their winter supplies, the neighbors are now agreed that it pays to spray.

TO PROTECT RUFFED GROUSE.

Owing to the great scarcity of ruffed grouse, now seriously threatened with extinction, efforts are being made in a number of States to close the season on this species for a term of years. Upon petition the game commissioners of Michigan and Pennsylvania have closed the season by regulation, and in New York the season was shortened to one month.

The close season has been extended on wood duck in New Jersey to October 1, 1921; indefinitely on swans, wood duck, and eider ducks in Ontario and Nova Scotia; and on eider ducks in Quebec.

Road Drag Offers Simple, Inexpensive Method of Highway Maintenance

The drag is a simple and inexpensive device for maintaining certain types of roads which when wet become rutted under traffic and which become firm on drying out. It is also well adapted for producing a smooth and uniform surface on newly constructed roads in which the material used for surfacing is earth, earthy gravel, or some similar material. It is essentially a maintenance implement, and its use in construction is distinctly secondary. Roads which are very rocky or very sandy can not be materially improved by its use.

Properly used at the right time the road drag performs four distinct offices. First, by moving at an angle to the traveled way it tends to produce or preserve a crowned cross section. Second, if used when the material of the surface is not compact and hard, it tends to reduce ruts and other irregularities in the road by moving material from points which are relatively high to those which are relatively low. Third, when used after a rain it accelerates the drying out of the road by spreading out puddles of water and thus increasing the surfaces exposed to evaporation. Fourth, if the surface material is in a slightly plastic state, dragging smears over and partially seals the so-called pores which naturally occur in earthy material, and thus makes the road surface more or less impervious to water. The advantage of this smearing action of the drag will be more readily understood if a sample of ordinary earth is examined under a magnifying glass. Such an examination will show that the earth closely resembles a sponge or honeycomb in structure, and the desirability of closing the open pores will be readily apparent.

If used improperly or at the wrong time, the drag may do actual injury to a road. Dragging a very dry road, for example, serves to increase the quantity of dust and may do additional damage by destroying the seal produced during previous dragging. If, on the other hand, the road is very wet and muddy, the irregularities in the surface are likely to be increased rather than diminished by dragging.

Twelve Rules for the Protection of Bees Wintered in Cellars

It is often difficult for the beekeeper to know whether his bee cellar is giving the best results, for he may not have been able to determine from reading or the observation of other cellars whether it is satisfactory. Below are given a few measures which the beekeeper may apply to his apiary and his cellar, so that he may be able to decide whether his methods of cellar wintering should be improved.

During the winter a thermometer inserted in the entrance of the hive should show a temperature of at least 52° F.

There should never be any condensed moisture on the covers of the hives, and certainly never any on the bottoms.

While the cellar should be kept dark at all times, if a candle is held at the entrance of a hive at the end of January it should be several seconds before any of the bees break cluster. Frequently the cellar doors may be opened in March without disturbing the bees.

There should never be many dead bees on the bottom of the hives. The live bees should be able to push them out as they die during the winter. The bees thus carried out will be found on the cellar floor just below the entrances. If there are bees all over the floor, it shows that these bees have flown from the hives—an indication of poor wintering.

The bees should be quiet during the late winter. Noise at this time indicates that the bees are disturbed by an accumulation of feces, caused by low temperatures or poor food.

If the bees were in good condition in the fall and have been wintered well, the loss during the winter will never be more than one-sixth of the total population of the hive. Such a loss is excessive, however, and in a well-wintered colony it may be as low as a hundred bees. This probably depends to a large extent on the age of the bees which go into winter, and if the temperature is right and the stores good there will be almost no loss of vigorous bees.

The bees should not leave the hive while they are being carried from the cellar. If they do, it indicates that they are excited by an accumulation of feces.

Before removal from the cellar there should be no spotting of the hives from dysentery. There may be a little spotting after the bees have had a free flight outside, but if this is small in amount it does not indicate a serious condition.

When the bees are taken from the cellar there should be no moldy combs, for the cellar at the right temperature will be too dry for the growth of molds.

There should be no brood when the colonies are taken from the cellar. Brood-rearing in the cellar is proof that the cellar is too cold or that the food used by the bees is inferior.

Enough brood should be in each colony at the opening of the main honey-flow to fill completely 12 Langstroth frames.

The population of the hive should not decrease appreciably after the bees are removed from the cellar. Such a condition, known as spring dwindling, is an indication of poor wintering. For three weeks after the hives are set out no new bees will be emerging, but the loss of bees during this time should be so small as not to be noticeable.

Trend of Farmers' Prices Through Year Shown in Official Figures

The composite price of meat animals received by producers reaches its highest point in September, according to the records of the Bureau of Crop Estimates, beginning with 1910, and the lowest point in January.

The mean index number for January 15, which is 6.69, rises to 7.59 in April, followed by fall to 7.47 in July, and by the highest rise to 7.78 in September, after which month the decline is to 7.32 in December and 6.69 in January.

The composite price for important crops received by farmers is high from May 1 to September 1. Beginning with the index number, 131.9 in January, the lowest of the year, the number increases to 157.8 in June, remains nearly the same, or 157.0, in July, rises to 159.2 in August, the highest point of the year, and falls to 145.1 in December and 131.9 in January.

NO PLACE FOR BIRD-KILLING CATS.

A campaign against cats found in pursuit of birds has been authorized by law in New York. This act was the result of a compromise secured by those who desired a provision that cats should be licensed. Efforts to secure cat legislation in Maryland, Massachusetts, and New Jersey were again unsuccessful.

Getting rid of grass, weeds, and undergrowth about the farm during the fall and early winter is one of the best protective measures the farmer can use against crop-damaging insects the following year.

Uniform products command the best prices. Pure-bred fowls produce uniform products.

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — NOVEMBER 27, 1918 — No. 17

NO DEPENDABLE DATA ON COST OF GROWING FARM PRODUCTS

Secretary Houston Replies to Senate Request for Information

Explains That Matter Previously Published Was Not Authorized by Department—Acts to Make Future Studies Satisfactory

In response to Senate resolution No. 310, asking for information regarding the cost of producing wheat and other farm products, Secretary Houston has sent the following letter to the President of the Senate:

NOVEMBER 7, 1918.

The PRESIDENT OF THE SENATE.

SIR: I have the honor to acknowledge receipt of Senate resolution 310, instructing the Secretary of Agriculture to furnish the Senate with information in the Department of Agriculture showing the cost of producing wheat and other farm products. I regret that I can not send to the Senate dependable information on this subject.

Certain studies of the cost of producing a number of farm products have been made by the Office of Farm Management. About a year ago the results of one of the studies were brought to my attention. After an examination of them, and in view of criticisms by competent experts of similar studies, I indicated to Dr. Spillman, who was Chief of the Office of Farm Management until September 1, that I questioned the validity of the methods pursued in the studies and was of the opinion that the exposition and interpretation of the data were not adequate. I indicated to him my desire that careful consideration be given the whole matter and that a system of inquiry and interpretation be devised which would be regarded by competent students of farm economics as sound and which would furnish results reasonably reliable and creditable to the department. Notwithstanding my directions, the inquiry proceeded according to former methods, and a number of weeks ago some of the results were embodied in several manuscripts. These were not brought to my attention until after some publicity was given them.

Asked Opinion of Competent Experts.

I gave the studies in question very careful consideration. I asked competent experts, including students of grain farming in the department and on the outside, to give me their opinion of them. I was convinced, as they are, that the studies are unsatisfactory in method and faulty in exposition and interpretation, and that the conclusions drawn have no validity. The studies have never been formally approved by the department. I assume that these studies, especially those on the cost of producing wheat, which the former chief of the office, without consulting me and without my knowledge, submitted to the Senate Committee on Agriculture, are the ones contemplated in the resolution.

Not content with my own examination of these studies and my conclusions concerning them, I submitted them separately to three well-qualified students of farm economics and requested their opinions. Their reports were adverse. I then referred the reports on the cost of producing wheat to a committee consisting of an economist from one of our agricultural colleges, one from the Bureau of Markets, a statistical economist from the Bureau of Crop Estimates, and a member of the staff of the Office of Farm

(Continued on page 7.)

> MAKING FUTURE LEADERS.
>
> **Democracy that is functioning to its fullest extent needs many citizens, both men and women, who are able to assume leadership. Two million boys and girls through their clubs under the direction of the Department of Agriculture and the State agricultural colleges are learning to be future leaders in their communities.**

WOULD GROUND MACHINERY TO PREVENT COTTON-GIN FIRES

Specialists Make Recommendation As a Partial Preventive

Federal and State Agencies Working to Reduce Big Losses in South—Information Offered By Department Representative

Sparks from static electricity, generated by cotton-ginning machinery, is believed to be one of the chief causes of fires which are destroying cotton gins in the South. Specialists of the United States Department of Agriculture made this announcement recently.

Representatives of the Bureau of Chemistry and the Bureau of Markets of the Department of Agriculture, and of the Texas Experiment Station, the State fire marshal, and insurance companies are cooperating in an investigation to learn the exact cause of these fires, and, if possible, to introduce devices and methods to prevent them. The specialists advise that machinery be grounded as a partial preventive.

Fires Numerous.

More than 350 fires have occurred in cotton gins in Texas during the present cotton-ginning season, according to specialists of the Bureau of Chemistry. Some have totally destroyed cotton gins and burned up large quantities of cotton. The insurance companies report 400 cotton-gin fires last season in Texas alone. It is estimated that more than $600,000 was paid in insurance last year in that State, which would cover only a part of the actual property loss.

Static electricity has been found to cause fires and dust explosions in thrashing machines, flour mills, elevators, and other mills where large quantities of dust accumulate. Tests have shown that large quantities of static electricity are generated in parts of the ginning machinery. While the investigations have not proceeded far enough to draw positive conclusions, the specialists are led to believe

that static electricity is probably a cause of the majority of the fires. The indications are that matches cause a very small proportion of the fires in cotton gins.

Preventive Measures.

The machinery has been grounded in 20 gins in order to lead off any static electricity that might be generated. No fires have occurred in any of the gins that have been grounded. This is merely a preliminary recommendation, as the investigations have not proceeded far enough to determine what proportion of the fires may be caused by static electricity.

Detailed information as to methods of grounding machinery will be furnished upon application to the representative of the Bureau of Chemistry, Dr. H. H. Brown, 1308 Southwestern Life Building, Dallas, Tex. Fires reported will be investigated by the specialists at the earliest opportunity.

POULTRY DISEASES AND TREATMENT.

All diseased birds should be isolated.

Colds and roup.—Disinfect the drinking water as follows: To each gallon of water add the quantity of potassium permanganate that will remain on the surface of a dime.

Canker.—Sprinkle a little flowers of sulphur in the mouth and throat of the bird and put some chlorate of potash in the water. Also carefully remove the exudate with the aid of warm water and paint with iodine or apply a good disinfectant to the diseased tissue.

Chicken pox.—Apply a touch of iodine to each sore and then cover with carbolated vaseline. If the diseased parts are kept well covered with the vaseline it will usually effect a cure.

Gapes.—New ground and vigorous cultivation will often remedy this trouble. A liberal sprinkling of lime around the coops and runs is quite often an effective remedy.

Scaly legs.—Apply vaseline containing a disinfectant to the affected parts, and after 24 hours soak in warm soapy water. Repeat treatment until cured.

Diarrhea in hens.—Low-grade wheat flour or middlings are good for this trouble. Also give each fowl a teaspoonful of castor oil containing five drops of oil of turpentine.

Bowel trouble in chicks.—Well-boiled rice mixed with a little charcoal will often check this complaint. Dissolve 15 grains of crude catechu in each gallon of drinking water.

A 13-year-old girl in Ohio—a member of a girls' club—won first prize in her county by putting up, unassisted, 930 cans of fruits and vegetables.

Enemy Lands Supervise Farms Rigidly; Food Shortage Talk May Be Propaganda

Through information secured by the United States Food Administration it is now possible to describe with reasonable accuracy the extent to which German farmers and those in other enemy countries are maintaining production and their attitude toward Government regulations.

Supervision in Germany.

There is abundant evidence of rigid official supervision which, to the American mind, would seem intolerable. For instance, the Bavarian state office has adopted severe measures to maintain the milk supply, even to the extent of taking farmers' churns and butter casks from them to prevent butter making on farms. As a result, milk deliveries in some districts have increased tenfold and are now practically as large as in peace times, though of course at the expense of butter production.

Opposition Surprisingly Small.

Naturally, this was not accomplished without some friction, but, considering the great number of food regulations affecting producers, of which this instance is typical, opposition has been surprisingly small.

In Hungary, fat and eggs are very scarce, but in midsummer vegetables were plentiful and were in the markets in large quantities. Peas were so abundant that instead of costing 24 cents per pound, the maximum price, they were sold at 15 cents. The exact condition of Hungary's poultry industry can not be clearly defined, but it is known that exports of eggs from the country were stopped by the food bureau in order that it might not be said of agrarian Hungary that she had no eggs in June. The price of eggs is reported at from 14 to 16 cents apiece and they were commonly sold in pairs rather than by the dozen.

Accustomed to Policy.

Farmers are now accustomed to the policy (which has prevailed in most European countries since the beginning of the war) of Government requisitioning. All bread grains and fodder are taken from farmers at harvest time, leaving them only sufficient amounts for feeding their own families and live stock and for seed purposes in the year to come.

This system has sometimes resulted, as for instance in Russia, in peasants withholding and hiding for their own use large quantities of their produce. But among the central powers the farmers to a large degree have come forward willingly and have given up their produce without hesitation. In one district in Bulgaria, following an extensive campaign in which food needs were pointed out, as much as 440,000 pounds of wheat and 44,000 pounds of corn were received in one day as voluntary contributions. The population as a whole has given its surplus stocks willingly, and the requisition system has had most satisfactory results. Requisitioning thus amounts to a system of comprehensive purchasing to meet Government needs, rather than an indication of hoarding or resistance by farmers to their Government.

Stimulation of Production.

As a further means of increasing their agricultural resources, the Central Powers have stimulated production and assisted farmers in various ways. The Agrarian Bank of Bulgaria, acting in accordance with the policy of the ministry of agriculture, has distributed some hundred truck loads of agricultural implements. The ministry of agriculture has also decided to open in Old Bulgaria 250 stud farms. To expedite the 1918 harvest military agriculturists were instructed to take all measures necessary. The system of labor organization included the employment of the able-bodied town residents, between the ages of 14 and 60, who were not engaged on their own behalf.

Farmers are believed to have benefited to a considerable degree by the systematic though drastic Government measures.

Facts to be Remembered.

Here in the United States, let us hope, we shall never be subject to the discipline to which German farmers submit, for it is inconsistent with our democratic ideas. But we should realize that:

1. Farmers in the enemy countries are supporting their Governments.
2. Certain kinds of food are still fairly abundant.
3. The Central Powers are using every possible means to maintain agricultural production.
4. Isolated cases of food shortage are not necessarily typical of large areas.
5. Reports that farmers are slackening in their efforts bear the earmarks of German propaganda.

When we realize that the peasants in the enemy countries are patient under very rigid regulations and are willing to give up food which they have worked very hard to produce in order that their armies may be fed, it should make us understand better the great task ahead

for American farmers. We can not well do less than farmers in the enemy countries. With our vast acreage and our greater individual enterprise, man for man, we must overcome the Prussian system.

Need for Conservation.

The United States Food Administration points out in the case of meat that if every suitable freezer in the world were packed to the roof that the supply of meat would last our population and the allies only a few days. The 30,000,000 cases of condensed milk canned last year in this country represent only about 2½ per cent of this country's annual milk supply. Crops that are growing and the meat animals that are developing on farms and all the food supplies constantly coming to market are the dominant factors in the food situation for the United States and the allies. Our producing areas constitute our greatest reserve. These facts, it is hoped, will enable American producers to secure a clear conception of the world food situation as it exists this fall.

CLUB BOYS IN CALIFORNIA IN BEAN SEED BUSINESS

Developing beans that bear 185 pods to the plant while the average number on an ordinary plant is 40 is what California boys' agricultural clubs are doing. Some club members have found plants bearing as high as 460 pods, according to field reports received by the United States Department of Agriculture.

The demand for selected-bean seed in California has increased to such an extent that 25 club members in Salinas Valley will soon make a regular business of selling this seed to farmers. This new enterprise is the outgrowth of the success attained by applying the scientific methods taught by demonstrators in the extension work of the United States Department of Agriculture and the State agricultural college. Each year members of these boys' clubs are required to select at least 10 of their best plants from which to choose the finest stock. Selected seeds from these are planted, and only plants showing high-yield strains are made use of for further cultivation. This process is continued until the quality of the seed is brought up to the highest standard. Every season a greater acreage is planted.

These seed demonstrations have so completely convinced the farmers that many of the fathers of the lads are going into partnership with their sons, agreeing to finance the business and furnish land needed for the purpose.

Here's the method adopted by a Salinas Valley boys' club member, one of the pioneers in the seed business: Three years ago he made his 10-plant selection, cultivating only a limited plot; the next season this selected yield was planted on a larger scale. This year, following the approved method, he has 30 acres of high-yielding stock. The coming season he intends still further to increase his acreage and have his dad as a partner.

Dairy Division Offers Help to Cities in Improving Milk Supplies; Work is Wide

Sanitary milk control—an important factor in city welfare and a big problem of the city health department—receives personal attention from the Dairy Division of the United States Department of Agriculture. Specialists in sanitary production and handling of milk are usually available, and upon request of the city health departments they are sent to assist in improving the milk supply. This assistance may mean the making of a general survey lasting only a few days or a very intensive inspection lasting two or three months.

During the last year personal aid was given to 36 cities in 14 States. In addition to this, assistance was given the United States Public Health Service by conducting sanitary milk surveys and in improving the milk supply of 15 extra cantonment zones.

All phases of city milk supply are covered. Inspection of dairies, milk plants, and other distributing centers are made; samples of the products are taken and analyzed both chemically and bacteriologically. When necessary, help is given in the installation of laboratories and technique and in the interpretation of the results of chemical and bacterial analyses.

Special meetings may be held among both producers and consumers of milk in order to arouse interest in the local milk supply. Advice in framing ordinances to cover dairy and milk conditions is also offered.

An important feature is the milk contest work, in which specialists assist in instituting contests and act as judges in scoring the product to determine the relative standing of milk producers. These contests encourage rivalry among dairymen and, in consequence, tend to improve the milk supply of a city.

PROPER ROAD DRAINAGE ESSENTIAL

The only reason for crowning a road surface is to enable it to shed water, and unless effective means are provided for disposing of the water after it is drained off the surfacce crowning will be of very little, if any, advantage. The side ditches should be amply large and should have sufficient fall to carry the water away as rapidly as it enters them, and they should have outlets at all convenient points. Cross drains or culverts should be constructed wherever it is desirable to transfer drainage water across the road, and they should usually be provided with end or wing walls for protecting the slopes of the embankment. When the material composing the roadbed is likely to be springy, a system of longitudinal underdrainage may be found necessary to secure proper drainage. In constructing a road, of any type whatever, it should be constantly borne in mind that adequate and continually effective drainage is absolutely necessary if the road is to be maintained in good condition.

PROPER HOUSING HELPS HOGS.

Serious decrease in hog marketings during 1917 has brought forth a demand that farmers and pig-club members materially increase their swine production to meet the needs of our soldiers and our allies for pork and pork products. Proper housing will be an important factor in such increased production, as it will reduce the amount of feed consumed and will prevent losses from exposure, especially with the early spring litters. In some sections of the country the farmers build larger and more expensive houses than are necessary, but in a great many places too little attention is given to proper houses for swine.

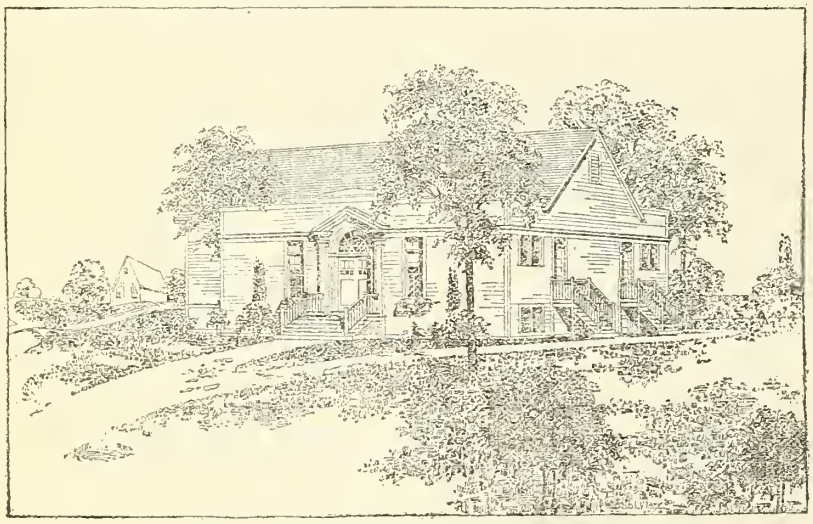
Produce the infertile egg. Infertile eggs are produced by hens that have no male birds with them. Removing the male bird has no influence on the number of eggs laid by the hens.

Soft-shelled eggs are often caused by the fowls being confined, becoming overfat, and from lack of mineral matter.

One great law of food conservation is to turn inedible feeds into edible foods in the cheapest possible manner. The dairy cow will utilize coarse materials, inedible by humans, such as grass, cornstalks, and hay, and will turn them into milk, which is suitable for human food. Other farm animals also are converters of coarse roughage into edible foods, but are not so efficient as the dairy cow.

Modern Structures to Displace Little Old Red Schoolhouse

Johnny Jones and Mary Brown, who live in the country, will assimilate the lore of the three R's under more favorable conditions, if the suggestions of the Division of Rural Engineering of the United States Bureau of Public Roads are followed in the construction of one and two room rural schoolhouses. Not only do modern, serviceable schoolhouses provide better sanitation and environmental conditions under which the country children can be developed, but they add distinctly to the content of rural communities.



MODEL TWO-ROOM RURAL SCHOOLHOUSE.

The One-Room School.

The one-room school recommended is complete with a well-lighted and thoroughly-ventilated classroom which has a capacity for 46 pupils. There are five large windows at one side, extending almost to the ceiling, while at the rear of the building are three large windows. The school is heated by a jacketed stove, the flue of which adjoins the ventilator intake, so that a forced draft and a continual circulation of fresh, warm air is produced.

It really isn't a one-room school. A comfortable library and a convenient domestic science room also are provided. They are accessible from the outside by means of fire-exit doors, which open outward. These rooms also connect directly with the teacher's platform. A small private room is also furnished for the teacher. The teacher can readily supervise the work in the classroom, library, and domestic-science room, as large windows are located at the sides of the platform, looking directly into the other two rooms.

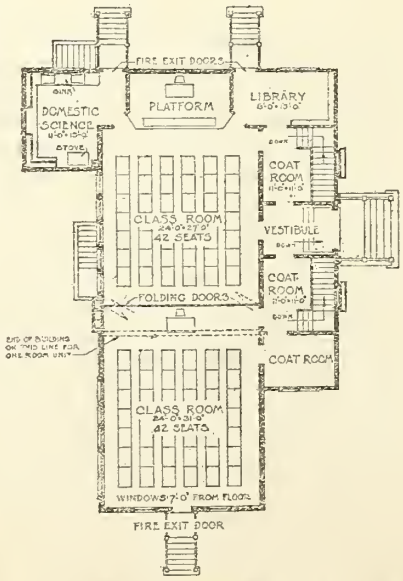
This one-room schoolhouse is of more than passing interest to the parents of Johnny Jones and Mary Brown, because the library and domestic-science rooms are so arranged that they may be used for private meetings as well as community or social gatherings while school is in session without conflicting in any way with the educational work. Lunches may be prepared and eaten in these rooms, which may serve as a useful meeting-place for farmers and their wives.

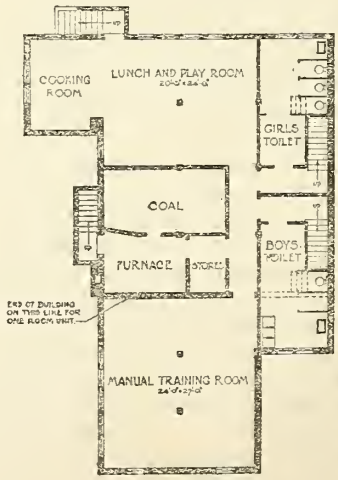
In those sections of the country where small schoolhouses are used largely no better layout for a practical and handy school is available. No space is wasted in this plan, while additional conveniences are presented which make the school highly desirable for country-wide use. Communities which are contemplating the erection of new schoolhouses of this character are strongly urged to consider carefully this suggested arrangement before definitely breaking ground for their new structures.

The Two-Room Building

For the service of those country communities which demand a larger schoolhouse than the one described above, the Government engineering experts recommend a two-room school to accommodate 84 pupils. In this building a folding partition or doors completely separate one room from the other. This house is also provided with special domestic science and library rooms which open from the teacher's platform and have private entrances through fire-exit doors from the outside. Plenty of coat rooms also are provided.

In particular this schoolhouse is novel insomuch as the folding doors between the classrooms permit of throwing the entire space into one large hall which can be used for community meetings, musicals, suppers, theatricals, or similar entertainments. Here again the library and domestic science rooms may be used by adults for other than educational pur-

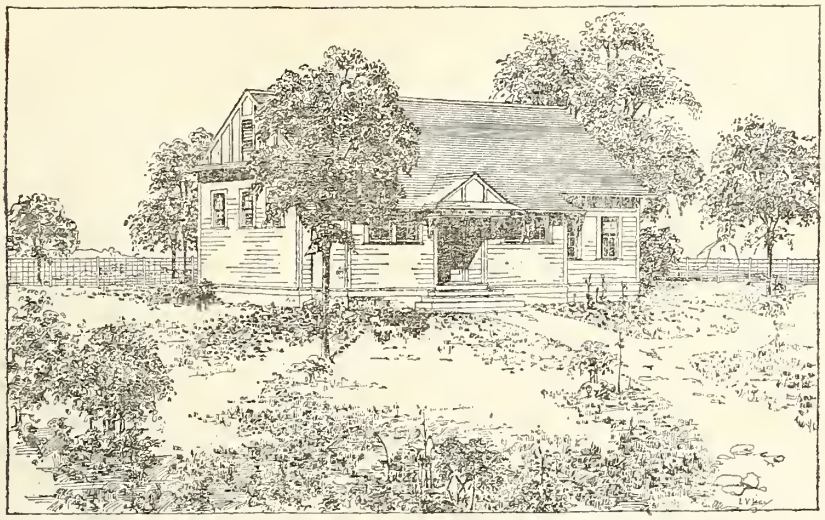




FIRST FLOOR AND BASEMENT PLANS OF MODEL TWO-ROOM RURAL SCHOOLHOUSE.

poses without interfering with school sessions.

Furthermore, this school is provided with a basement which may be divided into play and lunch rooms, with still other rooms for cooking, manual training, furnace, fuel storage, and toilet. If it is not desirable to excavate the entire basement some of these rooms may be omitted. The basement cooking room is valuable as a place where the children's lunches may be warmed or prepared. This schoolhouse may be constructed at first with one classroom and then as conditions demand the second classroom may be added. Furnace heat is used, the ventilating flues being so arranged adjacent to the furnace flues that a forced draft, involving a complete circulation of fresh, warm air is obtained. As in the instance of the one-room school, the windows are numerous and so situated as to favor the admission of a maximum of sunshine and light.



MODEL ONE-ROOM RURAL SCHOOLHOUSE.

POULTRY HOUSES AND FIXTURES.

Select a location that has natural drainage away from the building. A dry, porous soil, such as sand or gravelly loam, is preferable to a clay soil.

In most localities the building should face south, which insures the most sunlight throughout the year. Allow about 3 square feet of floor space per bird. Proper ventilation and sunlight mean a dry house and healthy birds.

Under the Federal migratory bird treaty act the sale of all migratory game birds is prohibited throughout the United States, except for scientific or propagating purposes, or of waterfowl raised on farms or preserves under proper permit from the Secretary of Agriculture.

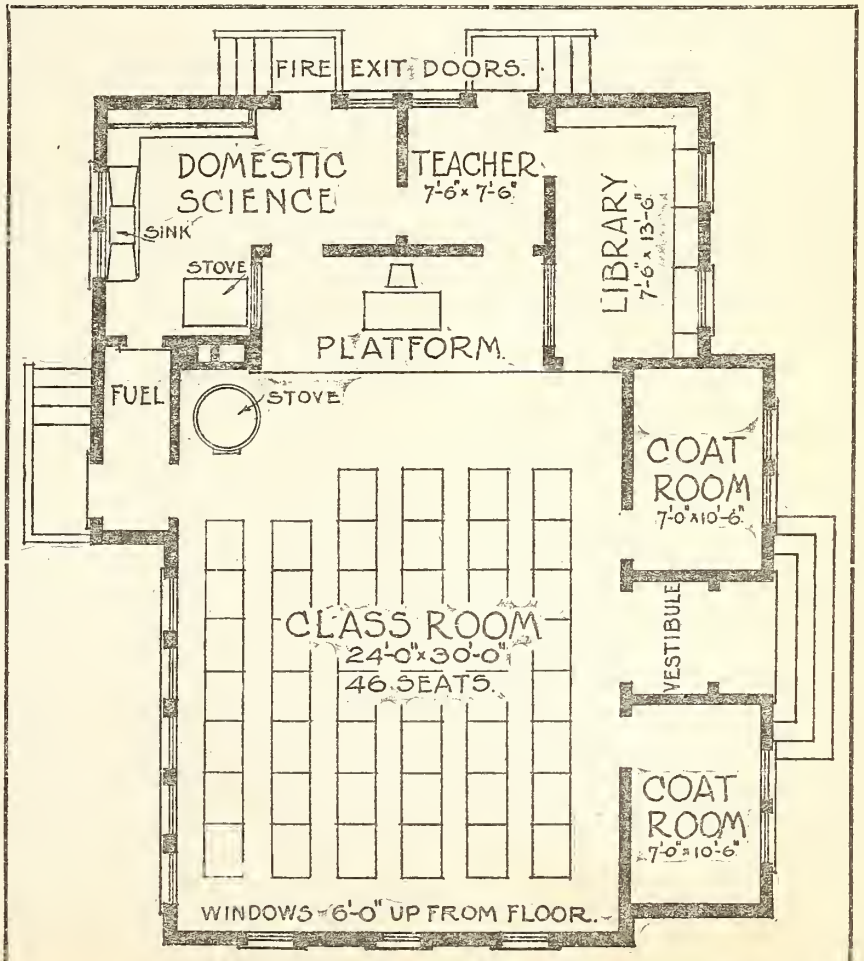
NAPHTHALENE EFFECTIVE AGAINST BEETLES

Naphthalene proved effective in preventing infestation of clothing and in killing all stages of carpet beetles in experiments by the Bureau of Entomology, United States Department of Agriculture. Camphor was effective against the various stages of insect, but killed much more slowly than did naphthalene. A red cedar chest killed adult and newly hatched larvæ, but had no effect on larvæ half grown or larger. Red cedar chips proved only moderately effective.

The experiments and their results are described in Bulletin 707, Results of Experiments with Miscellaneous Substances against Bedbugs, Cockroaches, Clothes Moths, and Carpet Beetles. This bulletin may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

As yet the soy bean is troubled by few serious enemies. In general, it may be said that no insect or fungous pest has assumed any great economic importance in connection with the culture of this crop.

The soy bean may be satisfactorily grown in combination with other farm crops. Although the chief advantage, perhaps, is a better balanced ration, the results of experiments indicate a larger yield of forage, as well as a greater variety.



FLOOR PLAN OF MODEL ONE-ROOM RURAL SCHOOLHOUSE.

WOMEN ARE MEETING DEMAND FOR TESTERS OF DAIRY COWS

Twenty - Seven Achieve Results Above Average, Department Specialists Find

Scarcity of Men Workers Causes Decrease of Associations from 472 to 353—Training Is Easily Acquired

The 27 women now employed as cow testers by some of the 353 cow-testing associations in this country have not only done satisfactory work, but have achieved results above the average, according to dairy specialists of the United States Department of Agriculture.

The main reason why women have begun to do this work is the scarcity of cow testers. Most of the testers at work when the war began were young men and many of them are now in military service. Because of the shortage of workers the past year has seen the number of cow-testing associations—organizations of farmers who want to keep records of their herds—decrease from 472 to 353, although there has been an increased demand for such associations, and it is believed the number could easily be doubled if enough testers were available. The work does not require great physical strength. It does demand some training, but this is easily acquired by women.

The first woman cow tester in the United States, Miss Bessie Lipsitz, began work less than three years ago with a cow-testing association in Grant County, Wis. Wisconsin now has 18 women cow testers, Iowa 6, and 3 other States have 1 each.

Demonstrates at Dairy Show.

At the National Dairy Show in Columbus, Ohio, Miss Ruby Hawn, one of the women cow testers of Wisconsin, gave daily demonstrations of the tester's work that attracted considerable attention and brought much favorable comment. She explained the details of the work and demonstrated all parts of it by going through each operation precisely as she had done hundreds of times before while at work in her association in northern Wisconsin. She always had attentive audiences and proved that a woman can do the work just as well as a man. When asked if women can handle the feeding problems as well as men, she replied, "They can learn."

Women to Stay in Work.

Considering that the testers get free board and lodging, the pay is thought to be satisfactory. The women cow testers are paid the same as the men and receive from $50 to $75 a month, besides board and lodging. Conveyance to the next farm is furnished in some associations, while in others the tester provides her own conveyance and the farmers furnish free stable room and feed for her horse.

The employment of women as cow testers came as a war measure. To keep the work on a satisfactory basis, women must continue to receive the same pay as the men for the same work. Occasionally there may be an association in which it would not be advisable for a woman to work, but if such is the case, the fault is with the association and not with the woman cow tester.

How to obtain more testers is a serious problem. Partially disabled soldiers, in some cases, may be induced to take the necessary training and enlist for the work. In some sections young men below draft age have been employed, and the results have been satisfactory. The most radical step, however, and the one that promises the most far-reaching and immediate results, is the employment of women as cow testers.

Jointworm Enemy to Eastern Wheat; Pest Ranks Next to the Hessian Fly

The most destructive enemy of wheat, next to the Hessian fly, in the wheat States east of the Mississippi River and in parts of Missouri is the wheat jointworm, say entomologists of the United States Department of Agriculture, in a recent Farmers' Bulletin No. 1006, "The Wheat Jointworm and Its Control." It is a very small grub which lives in the stems of wheat, sucking the juices of the plant and causing a swelling in the stem. Although this insect is sometimes more serious than the Hessian fly, occasionally causing complete destruction, very little is done at present to control its depredations. The insect has a number of natural enemies, but these should not be relied upon. Fortunately the jointworm attacks only wheat, which fact suggests one of the most reliable control measures, that of substituting crops. In the southern part of the eastern wheat belt the insect may be controlled by plowing wheat stubble deeply after harvest when this does not interfere with the growing of red clover and grass.

The egg from which the jointworm hatches is laid in the stem by an insect resembling a small black ant with wings. When a wheat plant first becomes infested no outward sign may appear. The presence of the worm can be detected when the plant is nearly mature by examining the inside of the stem, usually just above the second or third joint from the ground. Sometimes the point of infestation is very noticeable, there being wart-like swellings on the stem. Another very good indication is the presence in the field of a number of fallen or lodged plants.

The larvæ of this insect remain in the old stubble until November or December, when about 90 per cent of them change to the pupa stage. In this form large numbers are winterkilled in the Northern States, but severe weather also kills their natural enemies. Without the assistance of numerous parasitic enemies of the jointworm, wheat growing in the Eastern States of necessity would have been abandoned or the growers forced to adopt effective control measures, say department specialists.

When fall plowing is practiced the stubble containing the pest is buried deeply, thus preventing the insect from emerging the following spring. Whenever this method is adopted the badly infested wheat should be cut high, so that the greater majority of the jointworms will be left on the field in the old stubble and may be turned under and destroyed. In southern Kentucky, Virginia, Tennessee, and other Southern and Southeastern States where double-cropping systems are in general use, it is possible to plow under the stubble without interfering with the cropping system. Where this is not practicable, as is sometimes the case in the more Northern States, substitute crops, such as rye, barley, or buckwheat, should be grown on heavily infested areas.

COLONY HOUSES FOR HOGS.

Nearly every farmer producing swine can profitably use one or more movable hog houses. On many farms, especially where the winters are mild, movable hog houses will meet all the needs of the swine for shelter both from the hot sun of summer and the dampness and storm of winter.

The movable or colony hog houses are especially suited to the needs of the farmer just starting in the hog business, and also for pig-club members. These houses can be moved from field to field as the pigs are changed from one grazing crop to another. Their use makes it easier to keep the hogs healthy, as the house may be moved as soon as one place becomes insanitary or unclean. The movable houses can be built much more cheaply than the larger ones; they can be increased in number as the herd gets larger; and if the farmer is a renter they can be taken with him if he should move.

CROP SYSTEMS TO INCREASE SOUTHERN YIELDS DESCRIBED

Bulletin Points Way to More Production With Same Man Power

Ten Methods Outlined — High Efficiency and Plenty of Food May Be Obtained Through Following Advice of Specialists

By the introduction of cowpeas, soy beans, and other legumes, and by planting the cropping system so that two crops can be grown on the same land in the same year, many farms in the Southern States can be made to produce greater yields than under the present cropping system with no additional man power, according to Farmers' Bulletin 1000, which has just been issued by the United States Department of Agriculture.

Thus, according to the bulletin, two men with a team who, under a cotton and corn system, can farm but 33 acres of land, can handle 50 acres and raise 62 acres of crops under a system providing for a 4-year rotation, including cotton, with a winter cover crop, cowpeas, oats or wheat followed by cowpeas, and corn. The bulletin, which is a report of the study of the cropping systems in practice in various parts of Arkansas, outlines 10 systems, ranging from the common one of two-thirds cotton and one-third corn, to systems having a 4-year rotation and providing for stock raising.

Where Systems Apply.

The systems in general apply to all of Arkansas, except the northwestern part, and some of them may be used to advantage in other sections of the South, particularly northern Louisiana, northeastern Texas, southeastern Oklahoma, western Tennessee, and the northern half of Mississippi.

It is a matter of great importance, the bulletin states, that men and teams be kept reasonably busy at profitable work. Cotton requires little team work after the 1st of August, but a great deal of man, woman, and child work; thus a system of cotton and corn alone is markedly inefficient in its use of horses and mules. The four-year rotation previously mentioned provides for the distribution of work of man and teams throughout the year, as does the four-year rotation consisting of cotton and winter cover crop, cowpeas planted in May, oats or wheat followed by lespedeza, and corn. With the latter rotation 70 acres of crops can be grown on 56 acres, lespedeza being a second crop immediately following oats or wheat.

More Production the Aim.

The systems outlined in which the greatest number of acres are farmed with a given amount of man power and mule power are those which stand high from the standpoint of increasing fertility. Under a rotation consisting of cotton followed by a winter cover crop, cowpeas planted in May, oats or wheat the next season followed by cowpeas, and corn and late potatoes, a farmer can farm 25 per cent more land than under the corn-and-cotton system alone, and at the same time keep the soil in a higher state of fertility. Under the four-year rotations previously mentioned even more land can be farmed and the soil made richer, and thus the average production of cotton can be increased.

High production per acre, high production per man, plenty of food for home use, and a high efficiency of man and mule labor are to be obtained through following, not necessarily precisely, the approved systems that are outlined in the bulletin. Copies can be secured by applying to the Division of Publications, United States Department of Agriculture, Washington, D. C.

NO DEPENDABLE DATA ON COST OF GROWING FARM PRODUCTS

(*Continued from page 1.*)

Management. This committee reported that these documents were not analytical studies of the problem and that they might be considered merely as opinions. Later the author of the manuscripts in question asked for permission to withdraw them, stating that the data were not sufficient to entitle the documents to be regarded as analytical studies in any sense; that he could not defend them on any substantial ground; that they were based rather on personal observation of local conditions and notes taken on farmers' experience; and that they should not be given publicity. He further stated that the inquiry was hurriedly made; that the costs were not taken from cost-accounting records; that the agents talked with farmers and made up their minds; that there was, therefore, no tabulation of accurate data; that there was "a sort of adjustment from these figures" secured in the way indicated; that there was a lot of guesswork done and mental impressions formed; and that the figures given were not accurate but rough approximations.

Committee Declares Material "Wholly Inadequate."

As a further precaution, I requested a committee consisting of the president of the Kansas State Agricultural College, the chief in crops of Purdue University, an agricultural economist of the University of Wisconsin, an agronomist of the Pennsylvania State College, an assistant in farm management of the University of Minnesota, and a farm economist of the Agricultural College of Texas to make an inquiry and to submit me a report. They did so under date of October 31, expressing the view that they found "this material to be wholly inadequate upon which to base a conclusion as to the true cost of producing the 1918 wheat crop, for the following principal reasons:

"That the areas chosen represent only three out of the six major winter-wheat areas; and furthermore,

"That the seven counties selected in the winter-wheat area east of the Rocky Mountains are not sufficiently representative.

"That the number of farms investigated (about 158 for the wheat area east of the Rocky Mountains and 115 for the Pacific and Northwest wheat areas) was small; but of more importance even than this, that the data secured therefrom were very incomplete.

"That the manuscripts appear to be more largely based upon the authors' general knowledge of the items of cost of production than upon the specific data collected in the surveys made in the spring of 1918."

It will be noted that the committee points out not only that the number of farms dealt with was small but also that the data secured were very incomplete, as I have already indicated. Even the sample of the questionnaire inserted in the record by the former chief of the office, Dr. Spillman, was not actually the one employed in the inquiry, and those that were employed contained fragmentary data secured through conversations with farmers, as the author indicated in his communication to me.

Regrets Publicity of Incomplete Data.

I regret that the former Chief of the Office of Farm Management and the acting chief should have given publicity to the studies dealt with, since it is clear that they constitute no basis for satisfactory thinking or proper action in this difficult matter.

I have for a long time appreciated the difficulty of attempting to secure satisfactory studies of cost of producing farm commodities. There are many millions of farmers producing the leading crops. Conditions differ not only from farm to farm, but also from section to section, and averages mean very little. If such studies are undertaken, it is of the utmost importance that they give actual facts, that approved methods be employed, and

that the services of the best-trained men be secured for their proper exposition and interpretation. I am taking steps to see that further studies, if made in this field, shall be satisfactory; and to this end I am inviting the cooperation of the best agricultural economists and students of farm crops outside of the department, as well as inside of it, to assist us in formulating projects for cost studies and in recasting the work of the Office of Farm Management along the best possible lines.

Respectfully,

D. F. HOUSTON, *Secretary.*

REDUCING FIRE DANGER.

The fire hazard should be considered in the location and construction of all new farm buildings. Many groups of farm buildings are so located and constructed that any fire which might break out in one building would be almost sure to destroy the whole group. When a new building is to be erected it is worth while at least to consider placing it where it will be reasonably safe from fire starting in any other building and where it will not be a menace to other buildings.

Concrete construction is being used on many farms, and it is especially desirable for smokehouses, incubator rooms, and any other small buildings which are exceptionally subject to loss by fire. The first cost of a well-constructed concrete building generally will be greater than that of a wood building of the same size, but the concrete will last practically forever, and will seldom need paint or repairs.

A fire in such a building can do but slight damage to the building itself, and there is very little likelihood of its spreading to any of the adjoining buildings.

The curtain-front or partial open-front house is conceded to be the best type for most sections. The colony plan of housing poultry may be adopted to advantage on many farms. This system does away with the danger of tainted soil.

The roosts should be built on the same level, 3 feet from the floor, with a dropping board about 6 inches below them. Good roosts may be made of 2 by 2 inch material with the upper edges rounded.

The nests may be placed on the side walls or under the dropping boards. It is best to have them darkened, as the hens prefer a secluded place in which to lay.

Early hatching, with proper feeding and management, insures early egg production. If possible, mark the pullets that lay in the fall and use them in the breeding pen for the following spring.

ADVISE ROTATIONS FOR FARMS IN SOUTHERN HILLY REGIONS

Specialists Also Suggest More Stock Raising by Mountaineers

Department Desires to Aid Millions of People Who Work and Live in Rough and Remote Lands

Three million five hundred thousand people live on 500,000 hill farms in West Virginia, Kentucky, Tennessee, and the western portions of Virginia and North Carolina, and gain only a scant subsistence from their farming operations. On many of these farms the average annual receipts from the sale of live stock, poultry, eggs, and butter aggregate only $100. Most of the farms are from 10 to 35 miles from the railroad; rough mountain roads, which are impassable during the worst season of winter, are only outlets which connect these hill farmers with civilization.

It is the desire of the United States Department of Agriculture to render every possible assistance to these mountaineers in order that their farming operations may be conducted more profitably. With this end in mind the Federal specialists recommend that the farmers of the southern mountains should grow three or more crops in rotation, including clover, in order that the individual farmer may be able to produce larger crops and make more money and keep the majority of the crop land under cultivation all the time. Furthermore, they suggest that more cattle, hogs, and sheep should be maintained, as such live stock will not only increase the cash income but also will help materially in improving fertility conditions which in the long run will make for the production of larger crops. A four-year rotation of soy beans, rye, clover, and corn is well adapted for use on these southern mountain farms.

Sell Animal Products.

It is urged that each farmer practice a system of management which will allow him to convert his surplus grain and roughage into such concentrated marketable produce as cheese, butter, bacon, hams, and sausage, as the comparatively high value of these commodities per pound makes it possible to transport them long distances over rough roads at a profit to the producer. Recommendation is made that all the mountain communities which are not readily accessible to markets should organize and operate cooperative cheese factories wherever possible. The cost of equipping one of these small factories rarely exceeds $1,000, which means an outlay on the part of 20 farms of only $50 apiece. The whey, a by-product of the cheese making, is a valuable food for hogs.

"Resting" Land Unprofitable.

The common practice of letting the land lie idle for a few years to "rest" after it has produced a crop of corn is not necessary. Under the usual system of farming in the hill country even the rich coves on mountain sides are seriously depleted in fertility after three or four years. Rotation of crops keeps up fertility as well if not better than letting it "rest" and grow up to weeds. At the same time this practice brings a farmer more money, since it keeps the land busy all the time.

A practical rotation can be begun by cropping one-fourth of the tillable area in the spring to soy beans, which may be harvested for hay. Subsequently the bean stubble can be harrowed and prepared for a crop of winter rye. The clover should be sown on the rye land during the late winter or early spring, so that the field may remain in clover for two years. At the end of this period it should be broken and cropped to corn and then the rotation should be repeated. Managed in this way the average farm can carry two to three cows, five to six

SHEPHERD'S DON'TS.

1. Don't keep sheep on wet land.
2. Don't feed moldy or spoiled hay, roots, silage, or grain.
3. Don't forget to keep salt and fresh water before the sheep.
4. Don't neglect the sheep in winter. Keep them in good condition.
5. Don't forget to tag the ewes before breeding and lambing time.
6. Don't forget exercising the bred ewe.
7. Don't let the lamb go too long without sucking.
8. Don't neglect to feed the lamb grain as soon as it starts eating.
9. Don't let parasites kill your lamb for lack of some fresh green pasture.
10. Don't shear your ewes until warm weather comes.
11. Don't tie your fleeces with anything but wool or paper twine.
12. Don't hesitate to ask any questions of the county agent, or write to the Department of Agriculture at Washington, D. C.

young cattle, and a sow with five or six pigs. Several sheep may also be kept, as well as a team of horses. Small patches of alfalfa or sweet clover may also be grown whenever possible for hog pasture.

Could Increase Average Income.

Under this new system of management without an increase in the tillage area or a change in the market facilities, the average farm income could be increased from the existent standard of approximately $100 to a new point of approximately $650, which would afford better living conditions. In many cases the owner could continue seasonal work in lumbering, hauling, or in the coal mines, while others in the family could perform most of the necessary farm work. The proposed system need not interfere to any extent with the home industries already established, such as spinning, weaving, and the making of baskets and furniture, and does not necessitate any increase in the amount of work stock kept. Information of practical value to the southern mountain farmer is now available in Farmers' Bulletin 905, Ways of Making Southern Mountain Farms More Productive. It is suggested that every farmer in the mountain country should obtain a copy of this publication, and as far as possible institute such tillage, cropping, and marketing programs as are suggested.

Road Drag Is an Effective Device for Maintaining Simpler Types of Roads

When it is appreciated that of more than 2,000,000 miles of public roads in the United States only about 200,000 miles have been given a hard surface, and of these 200,000 miles approximately one-half are surfaced with gravel, the importance of every effective device for maintaining the simpler types of roads becomes readily apparent. It should be observed in this connection that a large part of our total mileage of public roads is entirely unimproved and that the road drag is of little use in improving sand or clay roads which have never been crowned or drained. A much larger part, however, has been sufficiently improved to make the work of the drag effective, and it is unquestionably true that the magnitude of this part is steadily increasing.

Notwithstanding the fact that road drags, made of wood or a combination of wood and metal, have been in use for at least two generations and were described in a textbook published as early as 1851, the benefits to be derived from using them are, even now, far from being generally understood. This fact is thoroughly evidenced by the prevalence of very unsatisfactory roads upon which considerably more money is annually expended in hauling materials to fill holes and ruts than would be required to maintain the roads in good condition by the intelligent use of a road drag.

Roach's Habit of Cleaning Its Legs Often Means Its Death

Government entomologists, by study of the habits of roaches, have found that these insects frequently cleanse their legs and antennæ when any dirt or powder comes in contact with these appendages. These are at once drawn through the mouth parts of the insects and in this way cleaned. As a result, a certain amount of any powdered substance applied directly to a roach or through which it may crawl, is taken into the mouth and presently, whether distasteful or not, finds its way into the stomach. Therefore it is not necessary to mix a stomach poison in powdered form with an attractive bait, since the chances are much greater that the poison will reach the stomach of the roach through its habit of cleansing itself and through the eating of poisoned bait.

Effectiveness of various exterminators for roaches are described in Bulletin 707, recently issued by the Department of Agriculture. Copies may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

Sodium fluorid was found to be the most rapid killer of roaches of all the substances tested. Pyrethrum powder, pure, killed practically all roaches within 48 hours, but its effectiveness was greatly reduced when slightly diluted. Borax was found to be very slow and was only partially effective in kitchen tests. Thirty-eight miscellaneous materials were found to be ineffective.

BE A POULTRY PRODUCER.

Keep better poultry: Standard-bred poultry increases production and improves the quality.

Select vigorous breeders: Healthy, vigorous breeders produce strong chicks.

Hatch the chicks early: Early hatched pullets produce fall and winter eggs.

Preserve eggs for home use: Preserve when cheap for use when high in price.

Produce infertile eggs: They keep better. Fertile eggs are necessary for hatching only.

Cull the flocks: Eliminate unprofitable producers and reduce the feed bill.

Keep a backyard flock: A small flock in the backyard will supply the family table.

Grow your poultry feed: Home-grown feed insures an available and economical supply.

Eat more poultry and eggs: By eating poultry and eggs more freely you will conserve the meat supply.

Sheep Harvest Their Own Feed, Destroy Weeds, Produce Profits

Sheep are extremely valuable as weed destroyers, and they can be shifted from field to field as crops permit, where they will clear up the fence rows, according to Farmers' Bulletin 1000, recently published by the United States Department of Agriculture, which outlines some approved crop systems in many sections of the Southern States which provide for increased crop yields and for maintaining soil fertility at little or no increase in man and horse power.

Lambs are Good Corn Harvesters.

In some parts of the country it is common practice to turn the lambs, at weaning time, into the cornfields, where they destroy weeds, but do not injure the corn. Where the corn ears stand up fairly high, sheep may be turned in after corn is laid by. They may eat an occasional ear that is down, and they will trim up the lower blades of the corn, but they will not "ride" the stalks down as hogs do. The benefit which they thus render is much greater than the damage they do.

Woven-wire fence is convenient for confining sheep to specified areas, especially when this area is in corn, since the cornstalks serve very well as posts to which to tie the wire netting. Corner posts should, of course, be more substantial.

Sheep may be used also to destroy weeds in fields that are not planted in crops, along roadways, and in waste places, thus tending to clean up the whole place and reduce the weed seeds that may be blown in or tracked in on cultivated fields. On the ordinary farm sheep are better than goats for this purpose, since they are more easily confined.

Three West Virginia Counties Show Service Extension Workers Can Give

Recent reports from three West Virginia counties indicate what the agricultural extension service of the United States Department of Agriculture and cooperating State agencies can do.

In Randolph County, where cooperative extension work has been organized for three years under the leadership of one agricultural agent and the supplementary services of a home demonstration agent for several months during the summer, 22 rural community clubs have been organized, and 496 farmers are paid-up members of the farm bureau. Of the 2,000 farm families in the county 50 per cent are reached directly through community club work, while 500 other families are keenly interested in the special gardening, canning, and farm purchasing activities. Furthermore, an additional 250 families are aided through weekly news notes and answers to inquiries. Thus the extension service is actively reaching 87 per cent of the farm families in the county. In addition, it assists 1,500 of the 3,000 industrial families in gardening and canning operations.

Monthly Paper Issued.

In Cabell County, where cooperative extension work has been in progress four years, are now employed one county agent, one county home-demonstration agent, and assistant agents during the summer. Nineteen rural community clubs are promoting better farming in their respective communities, while 425 farmers are paid-up members of the farm bureau, which is the county central organization, represented in every community by the community clubs. The farm bureau is subdivided into a garden division, a kitchen and canning division, and a war-service division, all of which are prospering. The county farm bureau also publishes a monthly paper, the Cooperator, which aids especially in developing get-together ideas and universal service for the local farms. Of the 2,940 farm families in Cabell County, 70 per cent are reached directly through the community organizations, while an additional 23 per cent of the farmers are assisted in their work by the public press, the Cooperator, and the garden, canning, and buying activities of the county association. Eighty per cent of the 10,000 industrial families are interested in the county agent and home-demonstration agent, who actively assist them in canning, kitchen, and garden operations.

26 Clubs in Field.

In Wood County cooperative extension work was organized five years ago. The agricultural agent and home-demonstration agent have assistant agents during the summer months. The agricultural affairs of this county are extremely prosperous. Twenty-six community clubs of farmers and their families form the field organization for 305 farmer members of a county central farm bureau. Thus 2,500 of the 2,800 farm families in the county are realizing benefits from the assistance and advice of the extension agents. Another 200 farm families are aided indirectly through the press, canning demonstrations, gardening, and purchasing activities. A total of 96 per cent of the farm families of Wood County are behind the county-agent movement and are not backward in availing themselves of the services which the Department of Agriculture and the agricultural college offer. Furthermore, 50 per cent of the 5,000 industrial families residing in the county plan their canning and gardening work according to the advice of the local county home-demonstration agent.

These are only 3 of the 2,350 counties in the United States now being served by men county agents, 1,700 of which also have women agents.

HEART ROT CAUSES EARLY DECAY IN LUMBER FROM WESTERN HEMLOCK

It has generally been supposed that lumber from western hemlock (*Tsuga heterophylla*) is likely to decay rapidly after it has been sawed. Such early decay, according to a bulletin just issued by the United States Department of Agriculture, is usually due to heart rot present in the growing tree before it is cut; its effects are particularly noticed as the lumber dries out, even though there is no progress in the decay itself.

This heart rot is known to the sawmill men as stringy brown rot; the fungus which causes it is known to the scientist as *Echinodontium tinctorium* (spine-toothed paint fungus); and to the woodsmen generally as Indian paint fungus. This last name is given not merely from the ruddy orange color, but mainly because the Indians of the Northwest used the powdered fungus for war paint, and also made a dye of it.

Where Rot Is Found.

While the rot is found on hemlocks and firs from Alaska to the Mexican border, it is most prevalent in western Montana, Idaho, Oregon, Washington, and British Columbia. It thrives best in the moist, dense forests in which the principal stands of western hemlock grow, and is favored by these conditions. Its presence in advanced stages is shown by the fruiting body of the fungus or "conk" growing on the outside of the tree, and indicative of the decay-producing mycelium within. In some localities, particularly along river bottoms and in poorly drained, moist soils, practically all the trees may be affected. In other places, with more light and less moisture, the rot is not so likely to be prevalent.

The extent of decay in standing trees may be detected in various ways; by the presence and extent of the conks; by the dull, hollow sound when they are struck by an ax; but best of all by the red color in the dead branches. If this color is present it may be found br breaking or cutting off these branches close to the tree.

Prevention and Control.

Prevention and control depend on local conditions. Intensive methods will not pay, for example, on extensive lumber cuttings. Only preventive forest sanitation may be depended upon to help, because there is no hope for cure after a stand of timber is once infected.

Two general plans are advocated by the department. One is to use the trees before they become most subject to the rot. This period depends on the general life history of the individual tree, an old tree which has many dead limbs and scars through which the spores may enter being more readily attacked than a thrifty-growing one which has not been much injured.

The other method is by girdling and killing diseased trees and thus stopping sources of infection. The trees may be girdled by ax or by fire, the latter agent being recommended as the more effective. Ax girdling may fail of its purpose, because the ax wounds grow over unless the work is thoroughly and painstakingly done, and the tree will continue to live and spread the spores. Fire girdling is much more sure, and may be easily accomplished by piling and burning slash around the base of the tree to be killed. Ordinarily it will not pay to cut infected trees.

One of the most common mistakes in the feeding of dairy cows is that the good cows are not given a sufficient quantity of feed above that required for their physical maintenance to obtain the maximum quantity of milk they are capable of producing.

Department Begins Grading of Beef for Military Use Under New Specifications

Selection and grading of fresh beef for the Army, Navy, Marine Corps, and allies was begun at Chicago November 4 by the Bureaus of Markets and Animal Industry of the Department of Agriculture and is being extended to Kansas City, St. Joseph, Omaha, St. Louis, Sioux City, St. Paul, and other principal packing points. It is planned to begin selection by the new system at all the purchasing markets within the present month. This system will centralize, coordinate, and simplify the selection, shipment, and storage of the beef required by the Government and the allies.

The starting of this service is the result of a joint agreement reached by the War and Navy Departments, the Food Administration, and the Department of Agriculture October 8, as previously announced. The specifications adopted as the new basis of selection follow:

Specifications for Allotted Fresh Beef.

"*Beef, fresh.*—Only dressed carcasses of beef which have been inspected and passed by inspectors of the Bureau of Animal Industry of the United States Department of Agriculture in accordance with the meat-inspection act, and which otherwise conform to the requirements and specifications hereinafter set forth, may be accepted on contracts for fresh beef to be supplied to the Army, the Navy, the Marine Corps, and the military forces of the allies. All such carcasses shall be the best available, irrespective of weight, and shall be selected and marked at the place of slaughter as herein provided under the supervision of representatives of the Department of Agriculture designated for the purpose. The contractor or his representative shall afford every opportunity and facility to enable the inspectors of the Department of Agriculture, designated for the purpose, to determine whether or not such carcasses meet these requirements and specifications.

Specifications for Quality and Condition.

"A. *Sex.*—No carcasses of bulls, stags, or oxen shall be accepted. No females, except not to exceed 10 per cent of heifers having soft, white, and wide cartilages and otherwise meeting these requirements and specifications, shall be accepted.

"B. *Conformation and condition.*—Each carcass shall be of well-balanced conformation with a good development of the back, loin, and round, and its general condition shall be good.

"C. *Finish.*—Each carcass shall have a development of fat that indicates a well-nourished condition. The external and internal fats shall be liberal, but not excessive, and shall be evenly distributed, with a suitable amount of intermuscular fat.

"D. *Flesh.*—The flesh of each carcass shall be of light to medium red color and fine to medium grain, and shall have a suitable intermixture of fat.

"Cutting and Trimming.

"Carcasses shall be quartered and trimmed according to specifications furnished for the purpose by the purchasing organization on the basis of standard commercial trim as defined by the Food Administration, i. e., hanging tenderloins, skirts, tails, breast fat, and all other loose and semiloose fats to be removed.

"NOTE.—United States Army, Navy, and Marine Corps specifications provide for the removal of kidney knobs in addition to the foregoing.

"There shall be an equal number of hind and fore quarters which, relatively, shall correspond as to quality and weight.

Grades.

"The application of these specifications should result in the selection only of beef of quality suitable for the fighting forces. The determination from time to time of prices of the beef selected in conformity therewith shall be based on the following grades: Grade 1A, choice steers; grade 2A, good steers; grade 1B, choice heifers; grade 2B, good heifers.

"In determining price differentials within each grade the following weight ranges, based on commercial trim, will be recognized: (1) under 500 pounds; (2) 500–600 pounds; (3) 600–700 pounds; (4) over 700 pounds.

"The grade shall be stamped on each carcass by the inspectors of the Department of Agriculture at the time of selection.

"The various grades of beef will be distributed to the different purchasing organizations in proportion to the total quantities required by each.

Marks.

"In addition to the grade designations provided above and to the U. S. INSP'D & P'S'D brand all carcasses accepted in accordance with these requirements and specifications shall bear the mark G applied under the supervision of the inspector of the Department of Agriculture, who examines the carcasses and finds that they meet these requirements and specifications. If the beef be wrapped the wrapping also shall bear the same mark."

More Fall Colts Being Raised; How Best to Care for Them

The high prices which horses of the better grades are commanding has been effective in increasing the annual colt crop in sections of the country which previously have neglected their opportunities along horse-raising lines. As a consequence, the production of fall colts has increased.

It is desirous that these youngsters be accorded every chance to begin the winter season in the best possible condition, as, although they avoid the fly evil, they are exposed to extremely cold weather and of necessity must be maintained in stables most of the time until the grass season.

Joint-ill, a germ disease which causes the death of hundreds of new-born foals, should be controlled by ligation of the umbilical cord as soon as possible after birth and the subsequent swabbing of the small portion of the cord left pendent in a 1:500 solution of corrosive sublimate. The filth germs enter the body by means of the umbilical cord unless such precautions are taken. A piece of surgeon's silk should be bound around the cord as close to the body of the animal as possible. Then the sublimate solution should be applied to the pendulous portion of the cord twice daily until it drops off. The colt should be born in a well-lighted and ventilated stable and in a stall which has been disinfected thoroughly and bedded with clean bright straw. After the birth of the colt, the stall should be cleaned out and again disinfected while the litter should be burned.

MELLOW LOAM BEST FOR SOY BEANS.

Although the soy bean will succeed on nearly all types of soil, the best results are obtained on mellow, fertile sandy loams or clay loams. In general, the soil requirements of the soy bean may be said to be about the same as those of corn, although soy beans will make a more satisfactory growth on poorer soil than corn, provided inoculation is present, but they will not make nearly as good growth on poor soil as cowpeas. Practical experience indicates that the cowpea succeeds better than the soy bean on the heavier clays and on the lighter sandy soils.

Begin marketing the cockerels as soon as they weigh 1 pound or attain a marketable weight.

SULPHUR-BLEACHED OATS MAY PROVE TO BE POOR AS SEED

Reduction in Germinating Power Shown in Tests by Specialists

Attractive Appearance Likely to Mislead Casual Observer—Brightness Should Be Investigated to Insure Good Production

In the purchase and selection of oats for seed farmers are warned by specialists of the United States Department of Agriculture to be careful of grain that has been bleached by the sulphur process. This process is now used extensively by commercial grain dealers to give oats of inferior quality a bright, clean appearance.

In experiments conducted by the specialists, a report of which is contained in Bulletin 725, just issued by the department, it was found that in nearly every sample of sulphur-bleached oats there was a great reduction in the germinating power. The largest reduction was in a sample which germinated 97.5 per cent before treating and 9.5 per cent after treating, or a total reduction in germination of 88 per cent caused by sulphuring.

Too much attention can not be paid to the quality of seed, according to the bulletin, for the same amount of time, labor, and money is required to sow a field of oats, whether the viability of the seed be high or low, and the product will be influenced directly by the percentage of germination of the seed. A casual observer is probably more likely to be misled as to the true quality of oats than of any other grain for seeding purposes, because oats that have been sulphured present an attractive appearance; therefore special care must be taken to ascertain whether this appearance is due to bleaching by sulphur or whether it is natural.

Feed Oats Not Good for Seed.

It is not an uncommon practice throughout the smaller oat-growing areas for farmers to use for seed oats that have been purchased for feeding purposes, especially when these oats appear to be of good quality. Frequently very poor yields are obtained from feed oats, because these oats may have been sulphur-bleached.

Seedsmen generally buy their oats under contracts, stipulating that such oats shall germinate not less than a specific percentage, and further that they shall not be sulphur-bleached. This provision, of course, safeguards the farmer when he buys oats from a seedsman who states that such oats are suitable for seed. However, as there is no general regulation governing oat handling in intra-State transactions which requires that sulphured oats are to be labeled as such, the farmer generally is without protection and often sows oats that have been sulphured. Some growers are not aware that there is a sulphur-bleaching process, or do not known that this process injures the germination.

Two Processes Used.

Two processes are in use in bleaching oats. They are known as the cold process and the warm process, the only difference being that in one case steam is used to moisten the grain and in the other cold water is used. As the moistened oats fall from the top of a tower they pass through sulphur fumes which come in contact with every kernel. After the oats have passed through the bleaching tower they are usually run in a bin and allowed to stand overnight, when they are cooled or dried, as necessity may require. The investigations show that it is possible by this process to bleach weather-stained, discolored, and damaged oats, giving them the appearance of natural oats of good quality. It is possible also to improve slightly the appearance of badly bin-burned and ground-damaged oats, thereby concealing part of the damage.

Better Grapefruit for California—Grow No Inferior Varieties

The reputation of California grapefruit has been injured in the past by the fact that the Marsh variety, which is the only important grapefruit variety now grown in that State, is composed of a number of strains, according to specialists of the United States Department of Agriculture. No recognition previously had been made of these strains, and the marketing of fruits of the various strains, some of which are of a decidedly inferior nature, in the same package has caused a great handicap both to the growers and consumers.

Investigations conducted by the Federal specialists, reported in Bulletin 697, "Citrus Fruit, Improvement: A Study of Bud Variation in the Marsh Grapefruit," just published by the department, show there are six important strains which have arisen from bud variations in the Marsh variety. The only strain of this variety which should be propagated is the Marsh. This bears a smooth, flat, thin-skinned fruit which is commercially seedless. The investigators are confident that the Marsh strain can be established and maintained, and variations within the strain reduced to a minimum through bud selection based on individual tree performance records.

Prominent among the strains which should be and are being eliminated are the Bell, Seedy, and Corrugated. Healthy trees of undesirable strains can be successfully top-worked by using select buds from fruit-bearing wood from performance record trees of the Marsh strain. A practical method of locating the most desirable trees in commercial orchards is presented by the department in Farmers' Bulletin 794, entitled "Citrus-Fruit Improvement: How to Secure and Use Tree-Performance Records." Both of these bulletins can be obtained free upon application so long as the supply lasts.

RESTRICTIONS OFF ROAD WORK.

The United States Highways Council announces that no further applications need be made to it for approval of highway projects, that previous disapprovals are revoked, and that pending applications require no further action.

Procedure in securing materials and transportation should follow normal practices, officials of the council said.

The removal of restrictions does not affect highway bond issues, which are under control of the Capital Issues Committee.

State highway departments will not be asked to submit programs for next year's work.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended November 16, 1918:

Soils of Southern New Jersey and their Uses. Department Bulletin 677.

Nematode Galls as a Factor in the Marketing and Milling of Wheat. Department Bulletin 734.

The Open Shed Compared with the Closed Barn for Dairy Cows. Department Bulletin 736.

Cooperative Bull Associations. Farmers' Bulletin 993.

Crop Systems for Arkansas. Farmers' Bulletin 1000.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Management of barnyard manure on farms differs greatly in the same locality and the best yields are usually found where it is given the best care.

TELLS HOW TENNESSEE GREW MUCH FOOD IN HOME GARDENS

Specialist Describes Work in Organizing Successful Campaign

24 Cities Had 598,550 Gardens with 4,192 Acres; Back-yard Products Help South to Feed Itself

Thousands of city people in the Southern States responded this year to the campaign for more home gardens, and it was largely with the products produced in these city gardens that the South was able to feed itself.

An example of the success of the garden work in the South is given in the report of C. J. Miles, city garden specialist of Tennessee, recently received by the United States Department of Agriculture. Through the efforts of Mr. Miles, cooperating with all interested agencies, 24 cities and towns in Tennessee were symtematically organized in garden work. In these 24 cities there were 598,550 gardens, covering a total of 4,192 acres. In the city of Memphis alone there were 29,912 gardens, covering an area of 1,028 acres. According to the report, Knoxville had 10,000 gardens, Nashville 8,000, and Chattanooga 5,000.

"It was the purpose of this work," says Mr. Miles in his report on the methods of organization and conducting the work, "to encourage the utilization of back yards and vacant lots for growing garden vegetables and to confine operations to cities and towns of the State over 2,500 population.

Plan Described.

"Our first effort was to effect an organization in as many of the towns and cities of the State as possible. The general plan of organization follows: A mass meeting was called, to which existing organizations, such as parent teachers, council of defense, and business men's organizations, were especially invited. At this meeting a central chairman was named to have general supervision of the work of the town or city. Associated with this chairman is a committee composed of one or more persons from each ward, school district, or natural division of the town.

"The immediate work of this committee was to take a garden census, listing the back yards and vacant lots suitable for gardening, the persons who contemplated gardening, and particularly those who desired more space than they had at their command. These latter at once were put in touch with owners of vacant lots, and in most cases were permitted to garden these vacant spaces free of rent.

Keeping Down the Cost.

"In some instances, notably in Memphis and Chattanooga, this committee listed the plowmen, and were able to reduce the rate of plowing from $5 an hour to $1.50 or $2 per hour. Growers of plants were also listed and plants procured in large quantities were furnished at a reasonable rate, and means were also furnished for supplying many who were too poor to help themselves.

"Twenty-four cities and towns were organized in this manner this year. It has been my purpose to visit each of these organizations once a month and spend a day and a night or more with them. At night the committees, together with any others interested, were called together for a conference. At this conference garden problems and plans for the month were discussed. On the day following practical demonstrations were conducted in the gardens. In addition to my monthly visits, newspaper articles treating garden problems have been supplied the city and town press, and much use has been made of the United States Department of Agriculture and Division of Extension bulletins on gardening."

TRACTOR PRODUCTION OF UNITED STATES REPORTED.

An investigation of the tractor situation in this country recently was completed by the Office of Farm Equipment Control, United States Department of Agriculture. It was desired to obtain accurate information regarding the status of the farm tractor industry in order to determine what action would be necessary to facilitate an adequate and equitable distribution of tractors throughout the country.

The investigation was made pursuant to the President's proclamation of May 14, 1918, relating to the farm equipment industry, which was issued under authority of the food control act of August 10, 1917. In connection with this investigation a report was received from every tractor manufacturer in this country concerning the number of tractors manufactured and their distribution between January 1, 1916, and July 1, 1918.

A summary of these reports is given below:

Number of Tractors Manufactured	
1916	29,670
1917	62,742
January 1 to June 30, 1918	58,543
Total for 1916, 1917, and first half of 1918	150,955

Number of Tractors Sold.	
To Users	
1916	27,819
1917	49,504
To Exporters.	
1917	14,854
1918 (first 6 months)	15,610
Number of tractors on hand, in transit, or in hands of dealers at time of report (August, 1918)	11,388

GAME REFUGES AND PRESERVES.

Continued interest is manifested in the establishment of game preserves, and while the volume of legislation of this character passed in 1918 is not large, it is worthy of mention. The War Department has created the Aberdeen Proving Ground in Maryland, consisting of nearly all the territory south of the Susquehanna and north of the Gunpowder River and between the Pennsylvania Railroad and Chesapeake Bay, including some of the finest waterfowl sections on the Atlantic coast, and hereafter no hunting will be permitted thereon. In Rhode Island the commissioners of birds have been authorized to establish State game reservations on private lands by lease or with consent of owners. New Jersey appropriated $5,000 with which to purchase additional land adjoining the State game farm at Forked River.

In Canada, Alberta has established two game preserves, the Cypress Hills and the Cooking Lake Forest Reserves.

LEAVES MAKE GOOD BEDDING

The importance of securing the greatest possible return from the manure supply of the country can hardly be overestimated at any time. It is infinitely greater when the production of food is so vital to the Nation as at the present time.

In localities where leaves are obtainable at small cost as compared to the cost of straw, a condition which exists in some sections, it would seem advisable to make use of this material for bedding instead of straw. It is a well-known practice in the wooded sections of the South to use leaves for bedding. Frequently land has been built up into a high state of fertility when this was practically the only means of supplying humus to the soil.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs that Are Helping American Farmers to Feed Nations

France to Have Boys' and Girls' Clubs.

France is considering the adoption of Uncle Sam's methods of teaching better farming and home making to boys and girls. Representatives from the French High Commission, lately in this country, made a point of studying carefully the methods of the Federal Department of Agriculture and the State agricultural colleges in conducting boys' and girls' clubs. Much of the information thus collected has been widely reprinted by the French press, accompanied by editorial comment expressing the view that, the man and woman power of France having been depleted or disorganized by war service, France for some time to come will be dependent in large part upon its younger population for its food supply and suggesting the formation in France of a nation-wide system of boys' and girls' clubs patterned on those in America. It is expected that these clubs will grow staple products—garden produce, wool, farm grain and forage crops, poultry and farm animals on farms not devastated, the very soil of which must first of all be put in condition. They will stimulate production by the young people of France through organized contests not only in farming but in home enterprises such as bread baking, garment making, cooking, and home management.

Employees Dedicate Patents to Free Use.

Thirty-four of the 49 applications to the United States Patent Office during the fiscal year 1918 for letters patent on inventions of employees of the United States Department of Agriculture were granted and were dedicated to the free use of the Government and the people of the United States.

The inventions described in these applications and patents may be used, manufactured, and sold by the Government and the people of the United States without the payment of royalty or other fees to the inventors or patentees. The farmers and the general public are given information concerning these inventions by means of departmental publications in the form of bulletins and circulars or other publicity. These publications usually contain, in addition to a description of the invention and its operation, illustrations and comments on their advantages.

Negro Farmers Buy Pure-Bred Cattle.

Dairy-extension forces in North Carolina, working through the local agent in Sampson County, have placed 18 head of pure-bred Jersey cows with negro farmers. It is said to be the first organized effort to place pure-bred animals for family use on negro farms. These animals were part of a carload purchased by the dairy-extension men in Ohio. The negroes paid an average of $100 a head for the Jerseys. The cows were secured only from herds in which milk production and butter-fat content were very high, and were much better individuals than are ordinarily brought in by traders.

Boys and Girls Raise Orphan Lambs.

Boy and girl members of sheep clubs in Utah are helping Uncle Sam in a big way by saving the orphan lambs. There were some splendid specimens of sheep at the State fair this year that had been raised on the bottle by boys and girls. One boy had raised 76 lambs. In Uinta County 1,100 lambs were saved by the boys and girls.

Canada Starts Sheep Clubs for Youths.

The first boys' and girls' sheep club in Canada was formed recently in Peel County, Ontario. Before this new work was undertaken a representative of the Canadian Government visited the Department of Agriculture at Washington to investigate extension work and especially the work with the boys and girls. The club started in Peel County is a direct result of this trip and is the beginning of work with boys in Canada. Oxfords were the breed chosen for the club because most of the sheep in that county are of that breed.

Agent Starts Sorghum Mill.

The county agent in Buena Vista County, Iowa, found a way to handle the sorghum crop after the growers had given up the problem because of the labor scarcity. The agent located an old horse-power crusher about 4 miles from Storm Lake. With the help of a retired farmer he brought it to a vacant lot where water and gas connections could be obtained from the city. A shed of rough timber was erected and a water pipe put in from a near-by house. Gas was also piped so that it could be used for cooking and save labor. The mill is now in operation, and several tons of sorghum cane have been ground. Smaller mills are taking care of sorghum in other parts of the county.

Agent Aids Army Gardening.

The county agent in Luna County, N. Mex., has assisted Army officials in procuring fresh vegetables to supply Camp Cody. The conservation and reclamation officers in charge of the work finally determined to purchase 160 acres of land within the camp grounds so that the camp would not be dependent on outside sources. Of this ground, 134 acres is devoted to vegetable production. The county agent has met a number of times with the camp officials to talk over gardening methods.

Makes Reports on Rock Deposits.

The Bureau of Public Roads has been assisting the National Research Council in the preparation of a report on deposits of rock, sand, gravel, and other materials for the use of the War Industries Board and other Government agencies. Complete reports of tests made by the bureau on all samples of rock and gravel are forwarded to the council, together with a statement of the location from which the samples were obtained. About 1,000 such tests are being conducted annually.

Furnishes Machines to Test Explosives.

Two impact machines for use in testing high explosives have been built and furnished to Government arsenals and institutions engaged in this work by the Bureau of Public Roads of the United States Department of Agriculture. Impact machines of this type are now in use in practically all of the arsenals throughout the country. The bureau also has been working at the request of military authorities on a device for testing the power of explosives so that a record of their force and speed may be obtained.

Boys' and Girls' Clubs Practice Tithing.

They are givers as well as workers, those boy and girl club members out in Colorado; and because of their sympathy with and their liberal response to Red Cross appeals they have won national dis-

tinction by giving one-tenth of their earnings to that organization. Neither have they overlooked the Food Administration requirements, nor the Liberty loan, war savings, and thrift-stamp campaigns. In all of these activities they are reported to have played a commendable part.

Oregon Women Make Home Conveniences.

More Liberty bonds were bought in Polk County, Oreg., without a doubt this fall because of the amount saved by the housewives in manufacturing their own iceless refrigerators and fireless cookers. These were made under the direction of the home demonstration agent. Fireless cookers were constructed at a cost of $1.50 apiece. The housewives in the clubs estimated that several hundred dollars were saved in this way besides the amount of time, labor, and fuel conserved. Window displays in the stores which exhibited homemade cook stove fruit driers, besides fireless cookers and iceless refrigerators, aroused much interest.

Night Classes in Homemaking for Saleswomen.

In Hutchinson, Kans., the home-demonstration agent is doing some interesting work with saleswomen. These young women meet in the evening to study home problems and are showing much interest in preparing themselves for homes of their own. Together they work out plans for the study of nutrition, sanitation, and food preparation, knowledge much needed by the average girl who has worked in a store ever since she left school.

War-Chest Funds to Teach Homemaking.

Salem, Mass., has given $1,000 from its war chest to use for work in home economics in that section. This work in Salem will be largely under the direction of the urban home demonstration agent.

Club Boy with the Right Spirit.

Ambition engendered by boys' clubs in the South does not stop at crop growing or production. The progressive spirit inculcated by county agents and demonstrators leads to higher aspirations, good citizenship, and the desire for education beyond that obtainable in the elementary schools. An example of this commendable spirit comes to the States Relation Service in a recent field report from Alabama. "One of my boys," writes the agent in Center, a town in Cherokee County, "has made 102 brooms from his corn. He has sold 60 at $1 each and has 200 more to make. The proceeds he will devote to his education along more advanced lines."

Community Markets to Save Perishables.

Women carried off in market baskets 10 tons of farm produce within 2½ hours and left $1,500 with farmers at a market established by a county farm bureau in Massachusetts. There are now 60 open-air public markets in operation in Massachusetts. Although these markets take care of only a small proportion of the farm crops, they dispose of the great mass of perishable foods which might otherwise be wasted.

Russian Thistle Used for Cow Feed.

The Russian thistle, considered one of the most noxious weeds in New Mexico, is now declared by many stockmen in that section to be of value as a stock feed. Some farmers in Santa Fe County already have put up large stacks of from 5 to 50 tons to be used for wintering stock this season. Its value as a feed was discovered during the last two years of drought when it was the only thing which stood between the live stock of the region and starvation. The county agricultural agent of Santa Fe County is urging the building of silos to be filled with Russian thistles, which it is also reported, make excellent silage.

Indians Help Save Potato Crop.

One hundred Indians, secured through the efforts of the Coconino County (Ariz.) Farm Bureau, went into the harvest fields and helped save the potato crop of that county this fall. The increasing acreage of potatoes planted in that section last spring made it necessary for the growers to cooperate in the harvesting and marketing of their surplus. The county farm bureau marketing committee made plans for handling each feature of the marketing problem cooperatively. Sacks were secured and graders installed through the bureau, which also undertook the inspection and selling of the crop. The chairman of the committee was authorized to act as official salesman in southern Arizona and will travel and make sales for the association.

Cooperative Exchange Cuts Grain Cost.

A saving of $9 a ton in the cost of grain was made through a cooperative exchange started at the suggestion of the county agent in Washington County, Vt. Nine farmers joined in ordering a car of grain in bulk, and most of them took their grain home in tight wagon boxes and stored it in bins to save bagging. About 300 bags, however, brought by farmers were filled at the car with little inconvenience. This grain cost the farmer $61 a ton in bulk, whereas the same grain would have cost $70 a ton delivered in bags.

TIME TO OVERHAUL MACHINERY.

The proper time for overhauling farming machines is during their period of inactivity and before the rush of spring work. If put off until needed, delay incident to getting repair parts promptly, press of other work, and the hazy recollection of the past season's difficulties may hinder the efficient prosecution of this work.

At the end of the season's work it is a plan well worth while to make out a schedule of needed repairs and adjustments for a particular machine and file it in a convenient place, so when opportunity arises the work may be taken up and prosecuted expeditiously. The machine itself represents capital invested. It should be housed properly and not left in a fence corner or other out-of-the-way place for wooden parts to rot and metal parts to rust, which, even for short periods, may cause more deterioration than the season's use.

FEEDING RACKS FOR SHEEP.

Combination hay and grain racks are probably the most convenient for feeding small lots of sheep. The open-end rack is suitable for use in barns where feeding can be done by passing directly from the feed alley to the rack, thus obviating the difficulties which follow from entering pens filled with sheep. Some shepherds prefer a rack with closed sides instead of slats; such a rack requires that the hay be eaten through an opening at the bottom.

POULTRY MAXIMS.

It is urged that all farmers and poultrymen adhere strictly to the following principal rules in handling their poultry and eggs:

1. Keep the nests clean; provide one nest for every four hens.
2. Gather the eggs twice daily.
3. Keep the eggs in a cool, dry room or cellar.
4. Market the eggs at least twice a week.
5. Sell, kill, or confine all male birds as soon as the hatching season is over, so as to produce infertile eggs. The male bird has no effect on the number of eggs produced.

Describes Control Measures for Truck Crop Insects in Louisiana

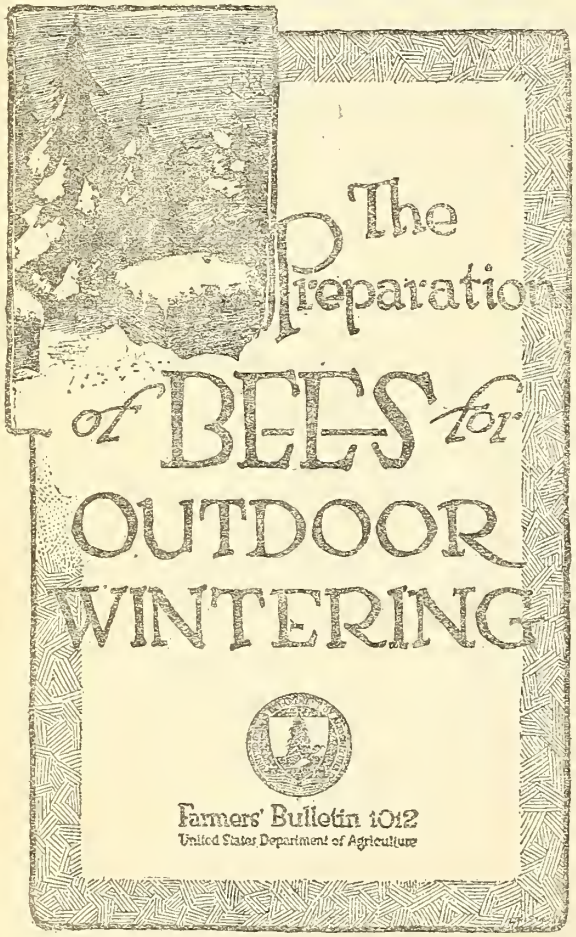
Truck crop insects in Louisiana, which have become increasingly destructive in recent years, have been made the subject of a study by a specialist of the United States Department of Agriculture, Thomas H. Jones, and a report of his work has been published as Bulletin 703. The studies include the insect enemies of the globe artichoke, the granulated cutworm and the tomato fruitworm. Control measures are described.

Insect injury to globe or burr artichoke, which has caused serious losses to many growers in Louisiana during the past few years, is largely due to the work of artichoke aphids, or plant lice. It was found that aphids could be satisfactorily controlled by spraying with one part of nicotine sulphate to one thousand parts of water, with laundry soap added at the rate of 1 pound to 25 gallons. It is especially advisable to begin spraying when the plant lice first appear on the plants before the leaves are badly distorted as a result of their feeding. Some growers, who do not begin spraying until the plants are large and heavily infested, find it advisable first to cut off and destroy the older and badly distorted leaves. It was found also that the banded leaf-footed plant-bug, the corn earworm, cutworms, and certain small maggots, the larvae of two agromyzid flies also caused some injury to artichokes.

The granulated cutworm, which has become numerous and destructive in some localities, is similar to other cutworms, and causes injury by cutting off small plants near the surface of the ground. Control measures consist in gathering the cutworms that are found during the day in soil about plants on which they have fed during the previous night; in protecting the newly set plants by wrapping stems with newspaper or oiled paper, or by placing cylinders of metal around them, and in using poisoned bait consisting of a mixture of 10 pounds bran, 1 quart molasses, ½ pound Paris green, 7 quarts water, and finely chopped rind and pulp of 2 oranges. When cutworms feed upon leaves of plants it is possible to reduce their numbers by spraying the foliage with a mixture of 2 pounds of powdered arsenate of lead to 50 gallons of water to which has been added 2 pounds of yellow laundry soap.

In the experiments in controlling the tomato fruit worm, which covered a period of two years, arsenate of lead was applied both as a spray and as a dust. The undiluted dust gave the best results.

Take Care of the Bees This Winter.



ONE of the most vital parts of the beekeeper's work is the preparation of bees for outdoor wintering. No other phase of beekeeping has so direct an influence on the honey crop of the following season. Here is a bulletin that tells how to treat the bees right. Every beekeeper should have it.

The apiary should be located in a protected place and the colonies should not be moved at the time of packing. Directions are given in this bulletin for the proper arrangement of the apiary to prevent confusion due to the shifting of hives.

The amount and character of the packing materials and the most economical type of packing cases are discussed.

A schedule of dates for packing and unpacking the hives is presented for all parts of the United States, and the amount and character of winter stores are indicated.

It is important that none of the factors of good wintering be omitted, and several tests are given so that the beekeeper may determine whether his bees are wintering properly.

Just an Average Day's Work Of a Southern Beef Canning Club

Beef canning days in Putnam County, Fla., are gala days among the canning clubs, conducted by the demonstration agent of the United States Department of Agriculture and the State agricultural college. A range-fattened beef is killed in the evening and bright and early next day the work begins. The agent demonstrates how to cut up the carcass. A fire is built under a big cauldron and the tough meat and bones are put in to boil. In the range oven immense roasts are browning, and on top the stove pot roasts and steaks are being carefully tended. Out in the yard the canner is sterilizing the containers, while the sirup kettle takes care of the overflow. The soldering irons are heating in the furnace, and everything goes merrily on.

The boiling pieces are ready first, and the family, as well as the visitors, are kept busy filling cans. While they pack the roasts the housewife prepares tempting gravy to put with it. By noon all the cans are packed and sealed and the pressure canner, which has been busy since 8 o'clock, does service the rest of the afternoon while the packers "do the rest." The demonstrator is home by 4.30 p. m.

Here's the result of one day's effort: Thirty-five cans of boiled meat, 34 cans of roast meat, 15 cans of steak, 12 cans of soup stock, 1 can of tongue, 2 cans of brains, 1 can of stuffed heart, 6 cans of tripe, and 2 cans of liver.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI DECEMBER 4, 1918 No. 18

Secretary Tells Farming Results; Agriculture's After-the-War Tasks

Farmers' Response in War Was Magnificent, Declares Mr. Houston to Editors

Expects Great European Demand for Food—Present Needs Outlined—Would Resume Road Work and Continue Supervision of Stock Yards

The following important statement by Secretary Houston on the agricultural and food situation has been prepared from the Secretary's remarks before a conference of agricultural editors at the Department of Agriculture in Washington, November 20:

I greatly appreciate your full response to my request and I would be untrue to myself if I were not also at this time, on behalf of the department and the Government, to tell you how much the cooperation of the agricultural editors of the Union has been valued by the department and the Government and how much it has contributed to the campaigns for the increased production of foods and feed stuffs and, therefore, to the successful prosecution of the war. The department has long recognized that the farm papers are perhaps the most effective printed mediums for reaching the millions of people living in the rural districts. We arrived at this conclusion a number of years ago after a very careful survey. I know of nothing that the better agricultural papers of the Union have omitted to influence thinking along right lines and to further the purposes of the Government.

I had two thoughts in asking for this conference. In the first place, I earnestly desire your advice, suggestions, and criticisms as to the activities of the department—past, present, and prospective. There is nothing which can be shown to be of value that the department is not willing to undertake, within the limits of its powers and funds, to help the agriculture of the Nation. There is nothing that it is now doing which it is not willing to curtail or to eliminate if such action seems wise. Of course, the department is not perfect. If it thought it were perfect, it would fail to do its duty effectively. For my part, I seek in my work here, as I hope I shall always do, to preserve an open mind and to receive every responsible suggestion and to give it the most earnest consideration.

DO YOU KNOW THE AGRICULTURAL EXTENSION SERVICE?

Do you know how it is organized, how it works, and what it has done during the last year—the fiscal year ending July 1, 1918—to help the agricultural forces of America carry on their big war job? The accompanying article aims to explain these things in a brief way. With regard to the things this army of workers has done during the last year this recital is very brief, for, as Secretary Houston recently pointed out, it is almost easier to tell what they have not done than to enumerate all their activities and the results they have achieved. A more detailed report of the work of the agricultural extension service is available in the annual report of the Director of the States Relations Service, United States Department of Agriculture, and in other publications of that service dealing with branches of the work.

Clear and Calm Thinking Needed.

In the second place, I desire to canvass with you the conditions through which

(*Continued on page 5.*)

HOW EXTENSION SERVICE AIDED IN WAR; PLANS PEACE TASKS

"Agriculture's Army" Backed Up Boys Who Fought "Over There"

Turned All Its Efforts Toward Helping to Victory; Ready to Help Feed the World; Organization Described

The extension service of the United States Department of Agriculture and cooperating agencies in the States has been on a definite war basis since the day when Germany's intention to destroy democracy was recognized by the United States Congress. It is now preparing to meet the vast tasks of peace, which agriculturally will be as great or greater than those of war.

The war found American agriculture prepared with an organization of communication and helpfulness that centered in the Secretary of Agriculture at Washington and radiated through the State agricultural colleges to every corner of the United States. Primarily the extension service has an educational purpose, but the war emergency has proved it to be far more than that. It has been demonstrated that the agricultural extension service can lead as well as teach. It has been the "general staff" for America's army of 6,000,000 farming units. But its generals and lesser officers have needed only to direct in order to be followed. The farmers have responded with admirable spirit. The proof of that is in the stupendous increases of 1917 and 1918 in production of essential food crops—the crops without which the war might have been lost.

How this has been done is indicated by the first and most important step that was taken in placing American agriculture on a war basis. Three days after war was declared the Secretary of Agriculture and representatives of the State agricultural forces met in St. Louis and drew up a national program of food pro-

Strengthen Agriculture's Organizations for the Big Job in 1919

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duction and conservation—a program that has been successfully followed and the substantial part of which four months later had been enacted into law. That conference was agriculture's war council. The speed with which it met and acted and the celerity and unanimity with which its recommendations were carried out are believed to demonstrate an efficiency in agricultural organization never equaled in any other country.

Extension Workers Deliver Message.

These recommendations were carried to the farmers by the workers of the Federal and State cooperative extension service. The story of how this service was developed, how it carries to the people in practical form the facts developed by the scientists of what President Wilson recently described as "the greatest practical and scientific agricultural organization in the world," and how during the war it has not only educated but directed, inspired, and led the great army of the soil, is a story that pays tribute to American capacity for achievement.

Expansion of Extension Service to Meet War Needs

The extension service was made a permanent and nation-wide system and liberally endowed by the cooperative agricultural extension act of May 8, 1914, known as the Smith-Lever Act. The service was rapidly expanded to meet emergency conditions created by the war with funds provided by the food production act of August 10, 1917, which allotted $4,348,400 for this purpose. During the past year the total amount of money available for the extension work from all sources was $11,948,000. During the present year (1918–19) $15,000,000 has been allotted for the work, of which $6,200,000 is derived from funds directly appropriated to the United States Department of Agriculture, $4,680,000 through the operation of the Smith-Lever Act, $2,500,000 from county authorities and organizations, and the remainder from the State colleges of agriculture and local organizations.

The rapid expansion of the extension service following the entry of the United States into the war is shown by the fact that while on April 1, 1917, the extension workers numbered 2,149, of which 1,461 were county agents, 545 home demonstration agents, and 143 club workers; on July 1, 1918, the total number had increased to 6,216, including 3,001 county agents, 2,034 home demonstration agents, and 1,181 boys' and girls' club workers.

Divisions of Extension Work.

Extension work is divided as follows:

County agent work.—An organized method of doing agricultural work in a county through a permanent local leader who represents the State agricultural college and the United States Department of Agriculture in their relations to the people in matters pertaining to agricultural extension work, and who is also the official medium through whom the people can most readily deal with these public institutions in such matters.

Home demonstration work.—Work for the betterment of rural (and to some extent also urban) life, particularly the domestic side, by women agents who carry the best available information about home economics direct to the homes, and explain it either by personal contact and demonstration, including actual trials by housekeepers themselves, or by addresses at meetings. In the past year much effective work of this nature, dealing particularly with conservation and ways of using neglected foodstuffs, was done in cities and towns by these agents.

Boys' and girls' clubs.—The men and women who organize boys' and girls' clubs strive to interest and train the youth of the country in better methods of agriculture and better homemaking. The developing generation is given an incentive and a spirit that in many cases have not only spurred them to high endeavor but have caused their elders to adopt better methods of farming and housekeeping.

Specialists.—Both the State agricultural college and the Department of Agriculture have specialists in various branches of agriculture and home economics, who aid county agents and home demonstration agents in their work, conduct extension schools in rural communities, general neighborhood meetings, conferences, etc., and also give direct instruction to farmers in counties where there are no county agents. Specialists are extension agents who have a very thorough knowledge of some particular line of work, and are efficient in presenting it to the county and home demonstration agents and to the people. They may be differentiated from the agents in the counties in that these agents have to cover the entire field of agriculture or home economics, whereas the specialists' field of work is generally limited to some particular subject such as dairying, horticulture, poultry raising, food, and nutrition, etc.

County Agent Work.

The county agent's position is essentially one of leadership. This means that among his qualifications should be maturity of judgment, sympathetic understanding of the farmers' problems, a genuine love for the farm and country life, an understanding of the right way to win the farmer's confidence and respect, ability to explain a technical subject in plain, clear language, experience in farming (preferably after leaving college), good health and willingness to work hard and a broad knowledge of the general underlying science relating to agriculture. He is expected to be able to—

Demonstrate established agricultural facts that are of value to the community but not yet generally practiced.

Make available to the people of the county the results of agricultural experiments and assist in determining the application of these principles to local conditions.

Search for the best there is in the farm practice of good farmers in the county and give the widest possible publicity to their work.

Study farming in all its relations and assist in the establishment of a system of farm management that is most profitable and consistent with a permanent agriculture.

Be interested in and render such assistance as is consistent with his prescribed duties to all work undertaken in the county for the improvement of farming or the advancement of rural life.

Develop and inspire local leadership and inculcate high community ideals, stimulate cooperation, and help the rural people in their organized capacity through the farm bureau and all other local associations to make farming an attractive business and country life satisfying to man, woman, and child.

As a teacher he teaches by demonstrations rather than by books, by object lessons rather than by lectures. Not only does he see that his demonstrations demonstrate but he capitalizes all the teaching forces in the county in giving the results of the tests or demonstrations the widest possible publicity. In carrying out his demonstrations he works with individuals, but the benefit to the individual worked with is incidental. His real purpose is to reach the community through his demonstrations and so benefit all.

The county agent is essentially a field man. He spends more than three-fourths of his time in the open country with the farmers, in their fields, barns, and homes. He should have and many of them do have an automobile to expedite his travel, an office in the county's central city, and a clerk to relieve him from office detail. The county agent's salary averages not more than $2,000 a year and his expenses average $1,000. He is paid partly by the Federal Government and partly by the State and local government.

County Organizations Supporting County Agent Work.

To make extension work effective it has been found necessary to organize county councils, county boards of agriculture, and farm bureaus to cooperate with the State college of agriculture and the United States Department of Agriculture in employing a county and a home demonstration agent and in aiding them in carrying on their work. These county organizations are generally composed of farmers and others in the county interested in agriculture. As a part of the organization, there are local clubs or committees who aid the agent in the different communities of his county. At present there are more than 1,000,000 farmers

who are members of organizations assisting the county agent in his work.

In the South special emphasis is laid upon community organizations of farmers. These are increasing rapidly and involve the work among men, women, and children. The tendency and general policy of the work in most of the Southern States is gradually to form central county organizations, composed of representatives of the community organizations, to deal, in cooperation with the county agents, with such problems as are county-wide in their nature.

In the Northern and Western States the county organization is usually known as a farm bureau. The farm bureau is a nonpartisan, nonsectarian, nonsecret organization representing the whole farming population of a county, men and women alike, and acting as a clearing house for every other association interested in work with rural people. Its primary purposes are:

(1) To bring to the agent the counsel and advice of the best farmers in the county as to what ought to be done and how to do it.

(2) To provide an organization for easily and quickly reaching every community in the county with information of value to that community or to the county as a whole.

(3) To provide a plan for organized self-help, enlisting the cooperation of all farmers interested in carrying out a county agricultural program of work.

Membership is open to all residents of the county directly interested in agriculture, men and women alike. A small membership fee (usually $1) is charged.

While the original conception of the farm bureau was as an aid to county agent work, it was quickly realized that it has a broader field, and now it is coming to be recognized as the official agricultural body interested in promoting all that pertains to a better and more prosperous rural life.

Some Results of County Agent Work in the South.

The fiscal year 1918 brought the number of county agents in the 15 southern States to 1,539, of whom 899 were employed with emergency funds, with 72 district agents to supervise their work and 70 boys' club supervising agents to supervise the boys' club work. In 1917 the number of farmers' or community organizations, spurred by the war spirit, increased to 3,507, with a membership of 113,316, as compared with 1,712 organizations and 44,548 members in 1915, and 2,508 organizations and 78,660 members in 1916.

Since the war began almost the entire effort of the county agents was directed toward increased production of food and feed, and the general support of agriculture under war conditions. The war-time slogan, "The South must feed itself," was sounded in every county to combat the difficult situation created by the highest price for cotton recorded in the last 50 years. The cotton acreage was increased, but the outstanding fact is that the acreages of food crops were sent so high that the South took a great stride toward growing all its own food within its own boundaries.

The 1918 acreage of corn was 101 per cent of the 1917 acreage; oats, 105 per cent; hay, 103 per cent; potatoes, 116 per cent; sweet potatoes, 100 per cent; cotton, 105 per cent. The number of hogs in 1918 was 108 per cent of the number in 1917; cattle, 107 per cent; and sheep, 118 per cent.

Demonstrations Conducted.

In the season of 1917–18 approximately 303,723 adult farmers conducted demonstrations in one or more lines of farm work at the suggestion and under the supervision of county agents. The total acreage in these demonstrations was as follows:

Corn, 799,476 acres; cotton, 501,729 acres; wheat, 156,660 acres; rye, 68,769 acres; soy beans, 77,597 acres; velvet beans, 540,448 acres; alfalfa, 44,526 acres; peanuts, 100,505 acres; Irish potatoes, 14,809 acres; sweet potatoes, 11,178 acres; miscellaneous forage crops for hay, soil improvement, etc., 364,741 acres.

Some 1917–18 activities of county agents in assisting southern farmers follow:

Pruned and sprayed 635,864 trees in home orchards as demonstrations.

Conducted feeding demonstrations with 18,598 head of beef cattle.

Brought in 58,007 beef cattle for breeding.

Conducted 30,041 demonstrations on feeding and management of swine.

Assisted in building 2,256 dipping vats to eradicate animal parasites and 5,517 silos.

Instructed 56,031 farmers how to care for farm manure.

Conducted 25,068 demonstrations with lime.

Advised 156,804 farmers in use of commercial fertilizers.

Furnished building plans for 3,028 farm buildings.

Installed 1,753 home water systems.

Put in 28,812 tiling and made 20,439 terracing demonstrations.

Helped in the planting or improvement of 315,654 home gardens.

Made 885,966 farm visits and received 765,207 calls at homes or offices; made addresses at 78,966 meetings with a total attendance of 3,880,403.

Helped in transferring 300,000 cattle from drought-stricken regions in Texas to regions of heavy crop production.

Led in outlining and promoting the emergency agricultural program and assisted in Liberty-bond, war-savings stamps, and Red Cross campaigns, and all other patriotic movements among farmers.

County Agent Work in the North and West.

The extension agents are having a marked influence upon agriculture in the 33 Northern and Western States. The records for the fiscal year 1918 show, for example, that—

The number of counties employing county agents increased from 544 on June 30, 1917, to 1,103 on June 30, 1918.

Farm bureaus increased during the year from 278 to 775, with a present total membership of 300,000.

County agents assisted 132,205 farmers in obtaining or locating more than 2,600,000 bushels of seed, as a result of which 3,478,892 additional acres are reported to have been planted with crops most needed to meet the war-time food demand. Increased production brought about primarily through the efforts of farm-bureau committeemen and county agents is estimated at 32,767,766 bushels of crops and 272,746 tons of forage.

Farm-bureau offices or county agents received 65,095 applications for farm help and assisted in securing or placing 66,036 laborers.

County agents arranged or supervised 34,613 demonstrations, involving 2,084,589 acres of crops and 149,820 head of live stock; 13,047 meetings were held to acquaint farmers with results of demonstrations, and were attended by more than 400,000 persons. On 16,370 demonstrations it was possible to follow up closely, the agents report, more than $4,500,000 profit to farmers.

In selecting seed corn for fall planting 354 agents assisted 63,813 farmers and more than a million additional acres were planted with this selected grain. Assistance was given to 36,538 farmers in testing seed corn, resulting in 946,563 additional acres being planted with tested seed.

More than 50,000 farmers cooperated with the agents in treating seed oats for smut, resulting in more than a million additional acres being sown with treated seed, increasing the yield an average of 4 bushels an acre, at an average cost of less than 10 cents an acre.

Nearly 100,000 additional acres were planted with seed treated for potato diseases; 8,954 orchards were cared for according to recommendations of agents in fighting orchard diseases.

Stimulating the raising of more leguminous crops for forage seed and soil improvement, the agents' work resulted in the sowing of 77,755 additional acres of alfalfa, 26,990 acres of sweet clover, 66,854 acres of soy beans, 8,798 acres of cow peas, and 10,097 acres of vetch.

To provide succulent feed, especially for dairy cows, 7,245 silos were erected at the suggestion or on the recommendations of county agents; reports indicated that nearly a third of a million acres of silage corn was grown at the suggestion of county agents.

In order to increase the production of live stock to meet war needs farmers were encouraged to raise more live stock, resulting in more than 40,000 additional head of cattle, more than 100,000 additional hogs, and 148,211 sheep being raised or placed on farms. Special efforts to save calves from being slaughtered for veal resulted in 10,499 additional calves being raised.

Agents were instrumental in having 36,392 animals, principally cows, tested for tuberculosis, 197,508 animals were vaccinated for blackleg, and 235,866 hogs were vaccinated for cholera.

Drainage systems numbering 1,188, involving the drainage of more than a

third of a million acres of land, and 225 irrigation systems, involving the irrigation of 162,475 acres of land, were adopted by farmers as planned by county agents.

At the suggestion of agents more than 26,000 farmers are known to have improved their fertilizing methods. In some cases yields have increased more than 100 per cent and even 200 per cent.

County agents arranged for 7,631 canning demonstrations for women, aside from club work, resulting in more than 4,500,000 additional quarts of fruit and vegetables being canned. Assistance in home gardening was given to 160,163 persons, while 82,434 farmers were given information in regard to the best methods of storing fruit and vegetables.

County agents in the Northern and Western States personally visited 157,683 different farmers, gave information to 468,514 callers at their offices, and took part in 55,432 meetings attended by more than 3,000,000 persons. More than three-quarters of a million letters of information were written and more than 3,000,000 circulars and circular letters were sent out.

Boys' and Girls' Club Work.

Important contributions to American food resources have been made in increasing quantities by the youth of the country through the boys' and girls' club work of the extension service. Over 2,000,000 boys and girls are enrolled in these clubs.

The country boys and girls are helping through the regular and emergency work of food production and conservation. Besides, several thousand boys and girls in cities aided through war gardens and food conservation.

An idea of the contribution made by the club workers to the Nation's food supply may be gained from reports sent in by a comparatively small proportion of the club members in the Northern and Western States. For example, 68,234 members reported on December 1, 1917, the production of $893,520 worth of fresh vegetables from home gardens; 21,736 members of canning clubs reported 1,569,229 quarts of fresh vegetables, meats and soups canned, 216,501 jars of jellies, jams and preserves, and 2,740 pounds of fruits and vegetables dried; 4,376 members of poultry clubs reported 106,358 chicks hatched, and 35,370 dozen eggs produced; 7,382 members of pig clubs reported 1,797,196 pounds of pork produced from 10,583 animals managed; 5,242 members of bread clubs reported 346,698 loaves of Liberty bread baked; 13,165 members of garment-making clubs reported 92,189 garments and pieces of work for home use and for distribution by the Red Cross.

Boys' agricultural clubs in the South had in 1917 a regular enrollment of 115,746. The regular enrollment was increased to about 204,000 in 1918, with an emergency enrollment of about 202,000, making a total of about 406,000, and it is believed that the final reports will show the value of food and feed to have been much larger than the value of that produced by the regular members in 1917, which was $4,486,900. Corn produced in 1917 by the regular club members totaled 1,135,576 bushels; potatoes, 67,858 bushels; grain sorghum, 38,756 bushels; peanuts, 102,688 bushels; wheat, 1,080 bushels; oats, 3,737 bushels; peas, 6,717 bushels; beans, 6,233 bushels; hay, 2,171,000 pounds; pork, 2,437,970 pounds; beef, 164,064 pounds; poultry, 135,667 fowls; pigs (breeding project) 37,101; dairy calves, 1,586; sheep, 183; cotton valued at $109,972; production of four-crop clubs (Georgia alone) valued at $56,800; miscellaneous products, $56,800. Negro boys in the "farm makers" clubs produced crops worth $106,201.

The girls' clubs 1918 enrollment in the South—61,589 regular and 980,272 emergency members—when added to the boys' club membership, makes a grand total of 1,447,861 boys and girls organized in the South.

GET THE ICE POND READY.

Maybe you don't think that winter is here, but it is on the way and is likely to arrive most any time. This is a good time to get the ice pond ready for the winter. Drain off the water and clean the bottom and sides of the bed with a rake or harrow and a hoe or scraper. See that no decayed vegetation or objectionable material remains.

And don't forget the dam. Go over it carefully and repair any weak spots. Then close the gate and let the pond fill, examining the dam again carefully for leaks.

Of course, you are careful that no contamination can drain into your ice pond.

As soon as work slackens, get right at the ice pond. Don't put it off.

Work among Women and Girls in the South.

In the South the work with women and girls is combined. Over 2,500,000 women and girls were enrolled in the regular and emergency home demonstration and girls' club work in the South, and were given instruction in such subjects as home gardening; poultry raising; canning, drying, brining, and preserving of fruits, vegetables, and meats; butter making; cheese making; and the use of substitutes to save wheat, fat, and sugar.

The women enrolled in regular work put up 34,993,677 cans of vegetables and fruits, valued at more than $7,000,000. They produced over 5,500,000 pounds of dried vegetables and fruits, and brined, pickled, and otherwise stored more than 1,000,000 pounds of vegetables. The regularly enrolled girls put up 12,843,000 cans of fruits and vegetables. The emergency enrollment of women and club girls is estimated to have increased the total to 200,000,000 cans of fruits and vegetables.

As a result of this work home gardening has been vastly increased in the South, and at the end of last season there were perhaps more canned and otherwise preserved products in the pantries and storerooms of southern homes than ever before at any one time.

Home Demonstration Work In the North and West.

Home demonstration agents had increased to more than 1,000 in the Northern and Western States at the close of the fiscal year 1918. Of this number 96 were employed in cities.

Among the outstanding results of the home demonstration work during the past year were more and better home gardens both in the country and in the towns, more home poultry flocks, many community drying and canning kitchens, large quantities of canned, dried, and stored food and increased use of milk and milk products. The home demonstration agents have taken an important part in the special food campaigns such as those for increased consumption of potatoes, cottage cheese, and home-grown products. An unforeseen by-product of their work has been its influence as an aid in the Americanization of people of foreign birth or extraction. In many instances it was the home demonstration agent in her food conservation work who gave the foreign woman the first understanding of the war and her duty as an American citizen.

The method of instruction in many States included the training of voluntary workers—one of the most valuable features in home demonstration work. In one city an extension force of three home-economics workers gave instruction in food conservation before 2,200 local leaders. These local leaders reached 3,300 women during the canning season, and as a result 8,250,000 quarts of fresh products were canned.

How to Use the Extension Service.

If a farmer or members of his family desire the assistance of the extension service in solving any of the farm or home problems application should first be made to the county agent in that territory; if there is no county agent, then to the director of extension at the State agricultural college. City people should apply to the local representative of the extension service or to the State extension director. Counties without local agents and desiring to organize for extension work should apply to the State director of extension.

TELLS HOW TO LESSEN GREAT WEEVIL DAMAGE TO LEGUMES

New Bulletin Says Pests Can Not Be Killed in Growing Plants

Crops Should Be Harvested Soon After Maturity, With Early Treatment By Fumigation, Heat, or Cold Storage Methods

Beans, peas, and cowpeas are often damaged seriously in storage and in the field by weevils. So serious have the ravages been in many sections—as in the coastal regions of the Middle Atlantic States—as to force the farmers to discontinue the production on a commercial scale of these valuable food crops and to turn to others.

Velvet beans and soy beans are rarely infested by this pest, but it is responsible for large losses of the Nation's food supply in the form of leguminous crops, as well as corn and wheat. Farmers' Bulletin 983, recently published by the United States Department of Agriculture, discusses the principal kinds of pea and bean weevils, and explains fully the method of avoiding losses which they cause.

There are no satisfactory artificial remedies, says the bulletin, that can be applied to kill weevil grubs in beans, peas, or cowpeas growing in the field. The crop should be harvested as soon as possible after maturity and the seeds thrashed or shelled and treated by fumigation, heat, or cold storage, in order to kill the weevils in them before they can continue their destructive work and mature.

Watch Seed After Treatment.

The bean and cowpea weevils breed generation after generation in stored seeds. Hence seeds should be watched after treatment to make certain that they do not become reinfested. If stored in tight containers or in rooms free from adult weevils the chance of reinfestation will be reduced to a minimum.

Any remedy that lessens the number of weevils present in the field has a direct effect upon the number of weevils to be fought in storage. Among the remedies recommended in the bulletin to lessen abundance are the planting of seed free from infestation, the practice of clean culture, and the harvesting, thrashing, or shelling and sacking of the seed as soon as possible. Fumigation of the seed in storage with carbon disulphid or carbon tetrachlorid will kill weevils.

Heating Small Quantities.

When only small quantities of seed are to be treated, the heating method is most satisfactory. Place the seed in an oven heated to 120° to 145° F., and allow it to remain several hours. An old method is to dip seeds in boiling water for one minute. Holding seeds in boiling water for more than one minute will injure their value for planting purposes. Cold storage is also an effective remedy, and the use of lime or dust prevents continued breeding in storage and thus gives some protection.

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SECRETARY TELLS FARMING RESULTS; AGRICULTURE'S AFTER-THE-WAR TASKS

(*Continued from page 1.*)

we are now passing, to assess them as fully as possible, to see what direction our further thinking should take, and to unfold to you our thoughts and plans. Unquestionably, there is need of very clear and calm thinking and of discovering as fully as possible the direction which our forces and activities should follow. If the whole Nation can maintain its customary poise and view its complex tasks in a calm spirit, much of our difficulty will disappear. In times of great change, of rapid world movements, no little hysteria naturally develops. One sitting at a nation's capital, dealing with vast interests, is likely to get the impression that there is more of it than actually exists. This arises from the fact that in a democracy, with masses of intelligent people, there are those who are always on the job of planning and of furnishing suggestions. This is the strength of democracy, and it is also one of the difficulties of democratic government. Many proposals are made affecting every great national interest and undertaking. In our particular field, since food has played such an important rôle in recent years, many views are laid before the public, some of them from responsible individuals and organizations, some of them from those of another sort; and alarms are sounded. Not a few suggestions of world famine and of impossibility of supplying our own and other peoples are offered. Apprehensions are aroused. Waves of impressions and suggestions come into this office; and, unless one keeps his balance, he is especially likely to develop the feeling, as I have said, that all the people are hysterical. This, of course, is not true. The great masses of our population are not greatly excited. They have maintained their steadiness during the period of stress through which we have passed, and they will maintain it for the future.

Only Three Periods Comparable.

It is not singular that many people should be disturbed and apprehensive in times of great change; and, therefore, particularly at the present time; for, obviously, we are in the midst of the greatest changes the world has witnessed. It seems to me that there are only three other periods in the world's history at all comparable with the present in point of interest and in respect to the nature and extent of changes and possibilities. The first is the breaking up of the Greek civilization. It doubtless appeared to the people of the time that they were witnessing the collapse, if not the destruction, of civilization. The same, in general terms, may be said of the period of the decline and fall of the Roman Empire. We know now that those periods were not periods of decay but rather of the dispersion and diffusion of the civilized agencies and forces of the world over larger areas, affecting favorably many more millions of people. The third is that which is marked by the dissolution of the medieval system and the discovery of a new world, with all its consequences.

Final Blow to Medievalism.

The fighting has ceased. It will not be resumed in the near future perhaps on any scale whatever, and, if at all, in restricted fashion. Do you realize what apparently has been accomplished or what is in sight? In general terms, the most striking fact is the giving of the final blow to medievalism in the world, revealed in the downfall of arbitrary power which has sustained itself through an imposing military array. It is almost incredible that the Romanoff dynasty, which a few years ago seemed to be one of the most firmly fixed facts in the world, has disappeared; that the Hohenzollerns, in some respects even more firmly planted, have gone; and that the Hapsburgs have fallen, and with them princes and potentates of varying degrees. Think of the wrong done to France righted in the probable restoration of the territories taken from her by force, of a restored Polish State which was broken up by conspiracy and arbitrary forceful aggression more than a century ago, and of the appearance of other unified nationalities based upon race, language, and community of purpose, such as the Czecho-Slovaks and the Southern Slavs! Is it not interesting to contemplate, too, the possibility of the elimination of the Turks and of Turkish rule from Europe? What appeals to the imagination more strongly than the final accomplishment of what has been sought by crusaders through the ages—the recovery of the Holy Land by Christendom? How impossible would it have seemed a few short years ago that the allied nations of the world would assent to the principle of dealing with peoples everywhere on the basis of the interests of such peoples. And how foreign

to the thinking of the central powers the thought that small nations have as much right to exist as the greatest, and that it makes a difference not so much how big a nation is as what kind of a nation it is. Who would have dreamed that there would be community of purpose in the matter of reducing armaments and of relieving the world, in fuller measure, of the burdens of militarism and of the effective development of a will to secure respect for the common purpose of decent peoples through association backed by an adequate international police? And, above all things, do we realize that we have saved for the world "the rule of law" among nations, given international law a new sanction and validity, and made it impossible for any arrogant power again to regard such law and treaties solemnly entered into as scraps of paper. Has not the purpose of the nations, crystallized in the phrase of the President, "to make the world safe for democracy," been secured?

No Justification for Excesses Here.

There are those who think that parts of the world have progressed even beyond the rule of democracy and will be committed to perversions of it. Personally, I do not fear that any considerable part of the world will run to excess for a very long period. I have no great fears as to England, France, Switzerland, the United States, or any of the other great free nations of the world. They are democratic. In democracies there is no good cause which can not secure a hearing and, in reasonable time, get itself expressed through the ballot. Democracies are not places where attempts of misguided minorities to force their will upon the majority by radical and violent methods flourish. A minority has a right fully to expose its legitimate purposes and to try to persuade the people to support them; but if it can not do so, it has no right to resort to force. The great majority of the people in this country clearly understand this. Unfortunately there are a few, many of them only recently among us, who do not see this. They have not caught the meaning, the spirit, and the purpose of democracy. They think too exclusively in terms of some other country entirely differently circumstanced, and they are confused by words. I can understand how peoples who have lived in Germany might realize the necessity of resorting to extreme measures to enforce their views, because there the masses of the people have not been consulted in governmental matters affecting their lives and fortunes. It is easy to see how they might undertake, by using force and violent measures, to break down tyrannical, dominating elements and existing institutions. Excesses in Europe will abate as real democracy makes headway. There is no justification for them here, and they will not be tolerated by the settled democracy of the other free powers of the world. I am not afraid that the great thoughtful masses of the American people will be swept from their moorings and will abandon their standards and principles. Still there is always need of vigilance and of clear thinking. There are those among us who are either ignorant, misguided, or vicious who assiduously spread misinformation; and, for innocent, selfish, or pernicious reasons, arouse or seek to stir up prejudices and unrest.

The remedy is the old remedy of education; and I speak of these things because they indicate the great responsibility resting upon the agricultural press of the Union and a great duty and privilege, although I recognize as clearly as you do that you have to deal with a constituency as deeply grounded in the principles of democracy and in understanding of its essence, if not more so, than any other great group in our country.

The Food Situation.

Turning, now, more immediately to our particular problem, I find, as I have no doubt you do, more than a normal amount of interest in the food situation and much discussion of it. In respect to this matter, there is no little confusion and misunderstanding. There are those, as I have said, who are raising alarms. They have in mind the present condition of the populations of Europe, and represent that, in view of the disturbed conditions there, they will not be able to sustain themselves and will take such supplies from this country as will make it impossible for us to supply our own population.

It is highly important to keep two things separate and distinct. For a year we shall be concerned primarily with available food supplies and with domestic and foreign demands for them. The matter of planting during the ensuing year and of the harvests a year from now are quite different things; and each of the two must receive discriminating consideration.

Farmers' Response Magnificent.

This Nation is, relatively speaking, very fortunately circumstanced with respect to its supplies of food and feedstuff[illegible] [illegible]ers of the country have re[illegible] [illegible]ficently. They have exp[illegible] [illegible] not only because of [illegible] [illegible]tory returns owing to the prevalence of large demands and good prices but they have also patriotically heeded the appeals of this Nation and of the allies for increased production. The facts speak for themselves. In spite of all the difficulties, of labor disturbance and confusion in every direction, the first year of the war, 1917, the farmers planted 23,000,000 acres more of the leading food crops than in 1916 and 32,000,000 more than the 5-year prewar average, and produced record crops of most products except wheat. Of course you gentlemen know that the partial failure of the wheat crop was in no wise due to lack of interest or activity on the part of the farmers. They planted a large acreage, but had the misfortune to lose by winter killing the largest percentage of it ever recorded. They further increased the acreage of the principal food crops in 1918, and indications coming to the department from the various channels at its disposal show that, in response to the suggestions of the department, they have enlarged their plantings of winter wheat and rye this fall. The total production of the leading cereals in 1917 and also in 1918 exceeded that of any preceding year in the history of the Nation except 1915. While the figures for 1918 show a decrease below 1917 of 160,000,000 bushels, it can not be said that the available supplies for human food or the aggregate nutritive value will be less this year than in 1917. The estimated wheat crop for the current year is approximately 919,000,000 bushels, compared with 651,000,000 in 1917 and 636,000,000 in 1916. The corn crop, although considerably less than that of last year, exceeds the 5-year average, is above the average in quality, and is greatly superior to that of 1917. It has been estimated that of the large crop of last year approximately 900,000,000 bushels were soft. This, of course, was valuable as feed for animals, but less so than corn of normal quality. It should be remembered that on the average only about 12 per cent of the corn crop is annually consumed by human beings and that not more than 26 per cent ever leaves the farm. Furthermore, the stocks of corn on the farm on November 1 are considerably larger than those of last year.

The farmers also have been very active in the matter of live-stock production. They greatly increased the number of all classes of live stock in 1917 and all indications point to the fact that there has been a still further increase during the current year, although final figures are not yet available.

Large Demand from Europe.

Undoubtedly the demand from Europe for available foodstuffs until the next harvest season will be great. England's

food production has increased during the war, but England still is, and will continue to be an importer of foodstuffs. France's production increased this year over last year, but did not return to normal. She will need unusually large supplies. Belgium, Poland, Holland, Norway, Switzerland, and other countries whose production has been greatly disturbed, or which normally import foodstuffs, will call upon us; and it seems clear that contributions must be made, in no inconsiderable measure, to the peoples of Austria and, to some extent, of Germany. Even our former enemies must be considered if for no higher motives than those of enlightened selfishness. The world can not afford to have a prevalence of chaos and riot in any part of it if it can be prevented. Hungry people are dangerous, and reasonable sustenance is a prerequisite to the return of normal conditions and the securing of democratic institutions. Unquestionably there are considerable supplies of foodstuffs in parts of Germany, in southeastern Austria, and in the Ukraine, but the conditions are disturbed and especially the means of transportation. The problem in these countries primarily is one of mobilizing supplies and of transporting and distributing them.

Difficult to Forecast Situation.

The foreign demand will be for a great variety of foods and feedstuffs, but especially for certain kinds of fats. It is therefore highly probable that prices for current supplies, for the harvests of this year, both because of large foreign needs and of continuing domestic demands, will remain reasonably high and remunerative to producers.

When we come to consider the situation which will prevail a year from now and what should be done in respect to further production, particularly in planning planting operations for next spring, we encounter more difficulty in making a forecast. There are too many unknown factors. We must remember that European nations will omit nothing to produce those things with reference to which they can get a prompt response; that is, bread grains and feedstuffs. If conditions settle down and order is restored, all pains will be taken to systematize production and to have those countries become as fully self-sustaining as possible. Again, in all probability, restrictions on trade movement will gradually be removed and ocean as well as land transportation will return to normal in due course. They will doubtless improve in the near future. Foreign nations will more and more look to their former distant sources of supply. We know that while the Argentine crop this year was not as good as it has been, it was reasonably large. Argentina also had a surplus. The Australian crop was satisfactory and there, too, were considerable surplus stores. Algeria, I am told, has a 25,000,000-bushel exportable surplus of wheat. We have witnessed in this country, as I have said, a record fall planting of wheat and the sowing of a large area of rye. We do not know these crops will come through the winter. If the condition should be favorable, we shall, of course, realize an unusual harvest. We shall not have available until after the beginning of the new year the estimates of live stock in this Nation.

Too Early to Suggest Spring Program.

It is clearly, therefore, too early to make detailed suggestions for the spring planting, and I know of no one who is wise enough to say what the supply and demand will be and the prices which will prevail a year from now. The Department of Agriculture and the agricultural colleges and other organizations will continue to study the situation, keep close track of developments and, at the proper time, in advance of the next planting season, will be in a position to offer suggestions. In the meantime, we must not fail to adopt every feasible means of relieving the farmers of economic burdens. We are taking active steps to perfect the local organizations cooperating with the Federal and State agencies, so that we may more effectively execute any well considered plan that later may be devised.

Demobilization of Army.

Much interest naturally attaches itself, now that fighting has ceased, to the matter of reconstruction or readjustment of industry and of agriculture. This involves, of course, the demobilization of the Army and the return not only of millions of men from military life to their former civilian pursuits but also the release of a great number of laborers from industrial establishments which were greatly expanded to meet special war requirements. The process of demobilization is under way. Plans are on foot to vacate the camps in this country and to send back within a very few days a quarter of a million men. I can not speak officially as to the time or method of withdrawing men from France. How many men we shall have to keep there for a considerable period I do not know. The war is not yet over. We are still in a state of war. We shall have to assist in the military occupation of German territory. Even if there were no work for any part of the Army in France, we probably could not get all our men back, under the most favorable transportation conditions, in much less than a year. We must expect that they will be returned by installments. Naturally those outside of the Regular Army who have been abroad longest will be brought back first. This, I assume, will be the guiding principle. It would be impossible to act exclusively on the principle of returning men by occupations. Such a plan would disrupt the Army units but, within all possible limitations, in withdrawing men due regard will be had to essential occupations, including agriculture.

Opportunities for Returning Soldiers.

What shall we do with the men when they return from France, and what will become of those engaged in specialized war industries? Is it likely that we shall have to be concerned with the larger percentage of our boys? Will not those who have come from the farms, who own farms, or who lived on their fathers' farms, as a rule, return to them as quickly as possible? Certainly the farms need them. Many others have professions, trades, or occupations awaiting them. The experience of some of the Nations to date, especially Canada, would seem to indicate that the greater percentage of the returning men will not call for special action on the part of the Government. Canada has been in the war nearly five years. Many men have returned who could not be sent back to the Army. A Canadian official recently told me that 90 per cent of the returning men did not wish to be bothered and that they had to interest themselves, therefore, in only approximately 10 per cent. However, no one will hesitate to say that every consideration must be given to returning soldiers who have no places waiting for them and who will be seeking new tasks. They deserve well of the Republic, and those who wish to go into farming, who have had any experience which would make such an occupation probably profitable for them, must be furnished every opportunity. The Nation and the States will unquestionably come to their assistance and every feasible thing will be done to secure for them the opportunities they seek somewhere in industry or in agriculture.

Still Pioneering the Country.

Of course this country is not yet filled up. In a sense we are still pioneering it. It is estimated that there are 1,140,000,000 acres of tillable land in the United States and that only 367,000,000 acres are actually in cultivation. Of course, much of the best land, especially that

most easily brought under cultivation and in reasonably easy reach of large consuming centers, is in use, though much of it, possibly 85 per cent, is not yielding full returns. Extension of the farmed area will consequently be made with greater expense for clearing, preparation, drainage, and irrigation, and for profitable operation will involve marketing arrangements of a high degree of perfection and the discriminating selection of crops having a relatively high unit value.

We must consider this whole question in the light of the recent past and of the probable future developments. Many people think too much in terms of to-day. How many of you realize that this Nation, in the 15 years from 1900 to 1915, gained a population of 22,000,000—nearly three-fifths that of the Republic of France, a Nation with producing and consuming power probably greater than that of any South American country. It is estimated, also, that since the European war broke out our population has further increased nearly 3,250,000, largely through natural growth. We have taken care of this population. Those who have wished to farm have found places. Doubtless we shall gain 15,000,000 or 20,000,000 in the next 15 years, and these, too, we shall take care of. These, too, will benefit from agencies working for the betterment of rural life which, in point of scope, personnel, financial support, and effectiveness, excel those of any three nations in the world combined. It is an urgent duty of all these agencies to assist those who are entering upon agriculture for the first time.

Problem of Emphasis and Selection.

What else stands out for consideration in the field of readjustment? I am now thinking, of course, of agriculture. Is it likely that many highly promising, novel, and original things can be suggested and put into practice? Agriculture probably was the best prepared interest in the Nation when the war came on. Through wise provision the country had secured an organization which was ready to function in all directions. The problem was one of emphasis and selection rather than one of new departure. And for the future, is it not likely that it will continue to be one of emphasis and selection rather than of novel enterprises? I have sought light on this problem from many sources. I have asked for suggestions in many directions and, for the most part, all that I have received to date confirm the view that we shall continue the process of selection and emphasis rather than attempt novel things.

Constructive Legislation Reviewed.

The last five years were especially fruitful of legislation helpful to agriculture. The first striking achievement was the adoption of the Federal reserve act and the organization of the system. Anything that improves the finances of the Nation, that makes them sound and enduring, helps every citizen. It seems providential that the reserve system should have been inaugurated before the breaking out of the European war. This war involved financial burdens and strains such as no economist imagined any country could stand; and yet this Nation has, by reason of the operations of the Federal Reserve Board and of the reserve banks, proceeded in orderly fashion with its finances. It has met its own needs and has come to the rescue of the countries with which we are associated. In no former period, either of war or of peace, were we able to weather any considerable financial storm. During the Revolutionary War our finances were chaotic. We promptly suspended specie payments at the beginning of the War of 1812, and also when our Civil War came on. During the period of expansion in the thirties we suspended specie payments and did not resume them for a number of years. In 1873, by reason of the overtrading following the Civil War, we had a suspension within a suspension. Twenty years later we were in trouble again, and in 1907 we had difficulties of a special and peculiar nature. What would have been the course of things if we had been less fortunately situated in this war no human being can tell.

The Federal reserve act not only enabled us to sustain our whole financial structure and to permit all industries to survive the financial crisis, but it took special note of the farmers' needs. It permitted national banks to lend on real estate and gave to farm paper a maturing period of six months. Later came the farm loan act, with whose terms and operations you are familiar. Notwithstanding the fact that this measure was passed and the system put into operation in a time of great stress, it has made marked headway and furnished great relief. Other measures, well known to you, are the cooperative agricultural extension act, the Federal aid road act, and the grain standards, cotton futures, and warehouse acts. I might add to this list the provision creating a Bureau of Markets, under which has been developed the most effective organization of its kind in the world, with available funds this year of $4,000,000 or $5,000,000. The bureau is rendering valuable service to agriculture in very many directions. Particularly significant and helpful are its Market News Services, which are furnishing information of great value daily to producers throughout the Union and have, in some sections, converted hazardous agricultural enterprizes into successful businesses.

Resumption, Extension of Road Work.

There remains other things to do. I can only sketch them. We must resume as quickly as possible, in full measure, the operations under the Federal aid road act. You understand why they had to be contracted during the war. It is highly important that they be resumed. I need not emphasize before you the fact that good roads are prerequisite for better agriculture, for orderly distribution, and for a healthful and attractive country life. From unexpended balances of Federal appropriations for the last few years, from State funds beyond what was necessary to meet the Federal allotments, and from amounts available during the current fiscal year, we shall have for expenditure during the calendar year approximately $75,000,000. Next year, if all the balances should be expended during this year and we should have to rely solely on the funds accruing next year, we shall have from Federal appropriations about $20,000,000 and probably more than this amount from State sources. The States, in addition, will expend sums in excess of what they have assigned, or will assign, for Federal aid road projects. Still it seems to me that we should take a further step—take this step not only because of the importance of good roads, but also because of the desirability of furnishing worthy projects on which unemployed labor during the period of readjustment may be engaged. There will be many things suggested for which Federal and State funds will be sought. Some of these will be unworthy. Clearly such public works as roads are worthy, and it would be in the public interest to make available larger appropriations from the Federal Treasury, to be used separately or in conjunction with State and local support.

Machinery Already Exists.

There need be no delay in the execution of such a program. The Nation has already provided the machinery in the Department of Agriculture and in the State highway commissions. The Federal aid road act was fruitful of good legislation, and each State in the Union now has a central highway authority with power and funds to meet the terms of the Federal act. The two agencies, in conjunction, have been engaged in devising well-considered road systems and in making surveys, plans, and specifications. The task will be one of selection, and those roads should be designated for improvement which are of the greatest economic importance, with due regard to such mili-

tary and other needs as are proper for consideration. There is no necessity for any departure from this scheme. The suggestions made have been canvassed with the President, the Secretary of War, and the Postmaster General, and they are in accord with the view that additional funds should be made available to this department and that they should be expended through existing machinery.

Personal Credit Unions.

Another task remaining in the field of finance is to provide a proper system of personal credit unions, especially for the benefit of individuals whose financial circumstances and scale of operations make it difficult for them to secure accommodations through ordinary channels. I am not oblivious to the fact that banks now make short-term loans of a great aggregate value to farmers possessing commercial credit, but there are those who can not easily avail themselves of the facilities they offer. This would appear to be a matter primarily for State consideration and State action. Such course has been approved by many of the best economists, and seems to have been that sanctioned by the joint committee of Congress. The department has formulated a tentative model law for personal credit unions, and is ready to place itself at the service of any State which is ready to undertake legislation in this field. A number of States already have adopted laws for personal credits. In most cases, however, the associations formed under them are composed of urban workers. The North Carolina law apparently has had more fruitful results in respect to rural associations. This is due, in no small measure, to the provisions made for educational activity.

The foundation for effective work in this field is the promotion of cooperative associations among farmers in general—associations of people who have a very definite difficulty to overcome. This department has labored steadily to advance this movement, and will continue its efforts to the limit of its powers and available funds.

Land Settlement.

I have already directed attention to a phase of the problem of land settlement. I have pointed out that we are still, in a measure, pioneering the country, and that we shall be called upon to take care of many more millions of people. Of course, we can not induce people to stay in the country districts or to take up farming unless we make rural life profitable, healthful, and attractive. Farmers can not produce merely for the love of it. They must consider their bank balance just as other business men do. In the long run as many people will engage in farming as are necessary to produce the supplies needed by society, and taken by society, at a price which will justify the operation. Farming must pay, and that is a prerequisite to its extension. The task of the organized agricultural agencies of all sorts is to improve rural life so that it will be profitable to the present farmers and attractive to those seeking new enterprises. They must omit nothing to improve processes, to promote economies, and therefore to relieve farmers of economic burdens in production, to control and eradicate animal and plant diseases and insect pests, and to better distribution and marketing.

It would be desirable to facilitate land settlement in more systematic fashion. This has too long been left to the haphazard intervention of private enterprises and the Nation has suffered not a little from irresponsible private direction. I think it is high time for the Federal and State Governments both, as well as local communities, to seek to aid in land settlement by furnishing actual facts, reliable information, and agricultural guidance to beginning farmers and to promote well-considered settlement plans.

Encourage Ownership of Farms.

It is particularly vital that the process of acquiring ownership of farms be encouraged and hastened. This is now the process. Tenancy has its dark sides, but it also has its bright sides. In no inconsiderable measure it is a step toward ownership. It is a stage through which many of our owners have passed and are passing. It is a stage at which the young farmer, in many instances, begins his career. The statistics indicate that 76 per cent of farmers under 25 years of age, and only about 20 per cent of those over 55, are tenants. With few exceptions, in the older sections of the Union, owning farmers form the largest percentage of the farming population. Characteristic exceptions are found in such States as Illinois where, for peculiar reasons, a high degree of tenancy and of absentee ownership exists. On the whole, the conditions do not furnish ground for pessimism. Still, it is incumbent on us to take every feasible means of expediting the process from tenancy to ownership. A helpful influence in this direction is the farm-loan system, and especially its practice of having vendors of land take second mortgages subordinate to the first mortgage of the land bank, enabling the farmer to secure a better rate of interest and to make payments over a long term of years. I have no doubt that the development of the principle of cooperation, especially in respect to personal-credit unions, would be a further step for hastening this process. In the meantime let us study carefully the terms of tenancy with a view to secure to the tenant such interest as will permit soil development and assure to him a reasonable share of the returns.

Stockyards and Packing Houses.

The matter of the supervision of stockyards and packing houses presents a problem about which there has been much discussion. The restoration and maintenance of conditions which will justify confidence in the live-stock markets and the meat-packing industry is the greatest single need in the present meat situation in the United States. As you know, the department, at the direction of the President, is now administering under license the control of the stockyards and related industries. The important results already accomplished under this authority clearly demonstrate its usefulness and emphasize the desirability of continuing it or some other adequate form of supervision.

The question also of exercising similar authority over the slaughtering, meat packing, and related interests is one for serious consideration. The Food Administration has placed limitations on profits on meat and by-products handled by these establishments and has required the installation of uniform accounting systems. In this way the centralization of control by a small group of packers has been materially checked. The economic welfare of meat production and distribution would be promoted by the continuation and development in some form of the supervision over the packing industry. Such control, of course, should be closely coordinated with that of the live-stock markets, and there should also be established a central office to which packing concerns should be required to report currently in such form and detail that it would be constantly informed concerning their operations. The necessary legislation should be enacted at the earliest possible moment.

The situation apparently requires three remedies, namely, regulation, information, and voluntary cooperation. Federal regulation, organized and administered as indicated, and exercised in close harmony with the regulatory bodies of the various States, is the most essential feature. Constant publicity, under Government direction, of current market prices, supplies, movement, and other conditions pertaining to the marketing of live stock, meats, and animal by-products would materially increase its effectiveness. It would also be a means of stabilizing the marketing of live stock and its products

and of making available the information required by producers and distributors in the marketing of their products. A beginning already has been made in the creation of machinery for such service at market centers and legislative authority for its further development should be continued and extended. Furthermore, better organization of live-stock producers and closer cooperation between their organizations and those representing the different classes of intermediaries, working in harmony with appropriate Government agencies, would also add to the effectiveness of regulation and would be beneficial to the packers and distributors as well as to the producers and consumers.

Federal Feed and Fertilizer Laws.

Some complaints have reached the department recently regarding commercial feedstuffs. We have been studying the situation and it seems to me that it would be desirable to have a comprehensive Federal feed law placed upon the statute books. At present, in order to secure for the public the benefits of the provisions of the Federal food and drugs act with reference to animal feeds, it is necessary to rely on the appropriate statutes of the different States. These are not uniform and there are a few States which have no laws that can be invoked. Under a Federal law, framed along right lines, it should be possible for the Government to proceed in a uniform manner and to secure to consumers protection against misbranded, adulterated, and worthless feeds entering into interstate commerce. Similar legislation with reference to fertilizers passing into interstate commerce probably would be feasible and valuable. At the same time it would be wise to make provision for securing comprehensive and reliable information regarding commercial fertilizers. I am convinced that there is much indiscriminate use of them at present and, therefore, much waste of money. This arises from the lack of available, satisfactory data. As the matter is one of importance to the whole Union I believe the department should participate in the work and that the requisite funds should be provided for cooperative experiments with State institutions.

Continuation of Emergency Activities.

Under the food production act of August 10, 1917, the activities of the department have been expanded in many directions. This is particularly true of the extension forces, including the county agents, the work relating to the control and eradication of animal diseases, and the market news services. That the efforts of the department in emergency directions have produced valuable results is indicated by expressions coming from all sections of the Union. If the finances of the Nation permit it, it seems clear that adequate provision should be made for the continuance of at least a part of the work after the end of the present fiscal year. I have already transferred to the regular bill the estimates for some of the emergency work of the Bureau of Markets. It would also be wise, I think, to anticipate the amount that will accrue under the agricultural extension act when it reaches its full development in 1922 and to make such further provision as may be necessary for the continuance of agents of proved efficiency already on the rolls, as well as to continue the intensive work for the more speedy control and eradication of tuberculosis, hog cholera, and the cattle tick, and other important lines of work. Expenditures for these activities are investments.

Rural Health and Sanitation.

The question of rural health and sanitation is one to which I have given a great deal of thought. It seems to me that we should omit no effort to see to it that the benefits of modern medicine accrue more largely to the scattered populations of the rural districts. The economic waste from insanitary health surroundings and from disease are enormous. It is impossible to estimate their extent. It is even more impossible to assess the amount of existing, preventable human misery and unhappiness. The remedy is difficult. Many agencies, including some private enterprises, are working for improvement, and States and medical societies are contributing. The extension and improvement of agriculture, including the drainage of lands, the clearing of swamps, and the construction of good roads, make for betterment. The Department of Agriculture, through its home demonstration service, is giving valuable aid and the Public Health Service is increasingly extending its functions. A vast deal, however, remains to be done to control such pests as mosquitoes and the hookworm, to eliminate the sources of typhoid fever, and, even more, to give the country districts advantages of modern hospitals, nursing, and specialized medical practice. To what extent the further projection of effort is a matter for State or local action remains to be determined, but it seems clear that there should be no cessation of activity until there has been completed, in every community of the Union, an effective sanitary survey and, through the provision of adequate machinery, steps taken to control and eliminate the sources of disease and to provide the necessary modern medical and dental facilities easily accessible to the mass of the people.

Farm Economics and Farm Management.

I have also been keenly interested all my life in the economics of agriculture, and I have, therefore, not only emphasized in my mind the necessity for developing a strong and effective bureau of markets, but also an organization here for the satisfactory study of the difficult problems of farm economics and farm management. I have by no means been satisfied with some of the work of the present Office of Farm Management. I refer especially to the studies of the cost of farm crops. It is unnecessary for me to point out the difficulties of securing accurate statistics on the cost of producing an agricultural commodity. Corn, for instance, is produced by perhaps 6,000,000 farmers over a continental area. It is difficult enough to ascertain the cost of producing corn on a single farm where there are complex operations. It is equally difficult to secure averages in a given area that are helpful guides. It is even more difficult where a tenant is involved. Still, averages are the best that we can get. A prerequisite, however, is that they shall be based on actual and distinct studies on many individual farms and that the facts shall be tabulated, carefully interpreted, and set out under the proper limitations. This is not true with reference to the studies recently much discussed. Competent, impartial economists and students of the subject, after careful investigation, reported that the studies were little more than expressions of opinion based on impressions received from conversations with farmers, that the interpretations and expositions were highly unsatisfactory, and that the conclusions as given were misleading.

I have the whole problem actively in mind. I am calling into conference the best students of farm economics in the Nation, including the heads of State farm management departments, some of which have developed programs superior to parts of ours, and I shall hope, at the proper time, to lay before Congress a carefully considered series of projects for an enlarged Office of Farm Management. I shall ask for sufficient authority and funds to secure the services of the best staff available and shall plan to work in close cooperation with well-equipped departments in State colleges and universities. It is my hope that the Nation shall not again be caught without adequate and reliable cost of production data as a basis for its thinking and acting. Of course, I realize that farm

management is much more than mere studies of costs. It involves land settlement, studies of ownership and tenancy, of the relation of crops, of domestic and foreign supplies in relation to domestic and foreign demand, and many other things.

I have in mind, I trust, not only further concrete principles for the improvement of the agriculture and rural life of the Nation but a vision of rural life toward the realization of which I hope to see the department, the colleges, agricultural organizations, farm papers, and all other agencies in the country steadily work.

CIVIL SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for assistant in cotton business methods, for men only, on December 21, 1918. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., at entrance salary ranging from $1,500 to $2,400 a year, will be filled from this examination.

Investigator in agricultural insurance, for men only. A vacancy in the Bureau of Markets, Department of Agriculture, with headquarters at Washington, D. C., at entrance salary ranging from $1,800 to $2,700 a year, will be filled from this examination. Date of examination, December 21, 1918.

Examinations for the positions of assistant in cotton testing (grades 1 and 2), for men only, will be held on December 21, 1918. Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at entrance salaries ranging from $1,800 to $2,400 for assistant in cotton testing, grade 1, and from $1,200 to $1,800 a year for assistant in cotton testing, grade 2, will be filled from these examinations.

Applicants for the above positions should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Eggs saved for hatching should not be subjected to high or low temperatures. Best results are usually obtained by keeping them in a moderately cool place, about 50° F. It is not advisable to hold hatching eggs longer than 10 days or two weeks.

February, March, and April are the best months for hatching.

Importance of securing the greatest possible return from the manure supply can hardly be overestimated. It is infinitely greater when the production of food is vital to the Nation.

WILL COORDINATE U. S. WORK IN MAKING MOTION PICTURES

Representatives of Government Agencies and Allied Bodies Organize

Aim to Place Federal Branches and Film Agencies in Closer Touch; Hope to Aid in Work of Readjustment

To coordinate film work of the various branches of the Government, especially in the work of readjustment after the war, an organization known as the Joint Committee on Motion Picture Activities of the United States Government and Allied Organizations has been formed.

Aims Are Outlined.

The purposes are outlined in the following resolutions of organization:

WHEREAS the various branches of the United States Government and allied organizations are engaged in motion-picture activities for educational purposes without in many cases coordination of effort; and

WHEREAS it is recognized that by coordination the most efficient results can be obtained with the least waste and duplication; therefore it is

Resolved, That a joint committee on motion-picture activities be formed of the representatives of the various branches of the Government and allied organizations having to do with motion pictures, and that the purpose of this joint committee shall be to place the various governmental and allied film agencies in closer touch, to the end that coordination and unanimity of action be established in the production and distribution of motion pictures and in the production and distribution of slides and trailers for use in motion-picture theaters.

Membership of Committee.

Representation on this committee is as follows:

Department of Labor, David K. Niles; General Staff of the Army, Capt. C. R. Dickinson; Branch of Ordnance, War Department, C. H. Moore; Surgeon General's Office, Maj. Thomas Evans; Department of Interior, Morton T. Leopold; Reclamation Service, Clarence J. Blanchard; National Park Service, Robert S. Yard; Naval Reserve Flying Corps, Lieut. W. L. Richardson; Department of Agriculture, Don Carlos Ellis; Treasury Department, Frank Wilson; Food Administration, R. W. Madison; Fuel Administration, T. M. Alexander; Railroad Administration, Safety Section, Austin F. Duffy and Charles W. Gregg; Committee of Public Information, Rufus Steele and G. W. Wood; American Red Cross, Dr. Thomas Quinn Beesley.

The following officers and executive committee have been selected: Mr. Niles, chairman; Mr. Ellis, secretary; Mr. Alexander, Capt. Dickinson, and Mr. Steele.

TO LIFT EMBARGO ON SHIPMENT OF BREEDING ANIMALS BY EXPRESS

The embargo on express shipments of live stock and poultry for breeding purposes from December 10 to 31 is to be lifted, according to word received from the Railroad Administration by the United States Department of Agriculture. The department pointed out to the railroad and express officials that its food production campaign would be retarded materially if an embargo were placed on the shipment by express of live stock for breeding purposes.

This embargo included all territory east of the Missouri River, including Minnesota. The placing of the embargo would have a particularly unfortunate effect upon the increase in pork production next year. The swine-breeding season is short, and if breeding animals could not be shipped by express during the proposed period, it would delay the season and have a serious effect upon next year's pig crop, the department pointed out, or else it would result in the use of a poorer grade of sires which can be obtained locally.

The embargo covers a large portion of the South, where there is particular need for improved breeding of swine and the shipment of good stock from the North in order to grade up the local hogs. Heavy shipments of breeding stock from the Northern to the Southern States usually are made during December. The unfortunate effect on northern breeders also was pointed out to the Railroad Administration, as it would leave them with a considerable part of their stock on their hands.

In New York waterfowl may not now be taken with a rifle in the forest preserve counties or on Long Island. New Jersey has made it unlawful to hunt from an automobile, or by the aid of lights carried thereon. An act of the Virginia Legislature imposes on game wardens the duty of killing dogs found destroying sheep. Rhode Island has made a distinct advance in game protection by prescribing for the first time a bag limit of not more than 15 game birds in possession.

The Federal migratory bird treaty act regulations permit the possession of migratory game birds during the open season and the first 10 days following the close of the season.

NEW RECORDS SET IN CATTLE TICK CAMPAIGN OF THIS YEAR

South Adds 79,217 Square Miles to Area Free from Quarantine

Dippings More Numerous Than Ever; Wedge Driven Through South Carolina to the Sea; Territory Liberated

The year that brings to America and the allies victory in the great war also brings to the South the fruits of the biggest year's work that ever has been done in freeing it from one of the greatest obstacles to the development of balanced and prosperous agriculture.

The Federal and State forces fighting the cattle-fever tick—the destructive animal parasite that has caused an annual loss estimated at $40,000,000—have gone so far "over the top" this year that in the 12 months ending December 1 they will have driven the tick from 79,217 additional square miles of territory in nine southern States. That is the greatest area ever freed from the tick in one year since the campaign began actively in 1906. Added to the territory previously freed, it makes 458,529 square miles—63 per cent of the 728,565 square miles infected and quarantined on July 1, 1906. The accomplishment convinces officials of the Bureau of Animal Industry, United States Department of Agriculture, that their goal of a "tick-free South" will be attained early in the nineteen-twenties.

South Carolina Wholly Free.

Aside from the outstanding fact that the releases from quarantine on December 1—soon to be formally authorized by the Secretary of Agriculture—will open up a great area to unrestricted cattle raising and marketing, the year will be notable because it places another State in the 100 per cent tick-free column. That State is South Carolina, from 10 counties of which the Federal restrictions are to be raised. These 10 counties, lying along the coast and with an area of 8,739 square miles, are the last in the State to be freed. In 1906 all the 44 counties of South Carolina, with a total area of 30,495 square miles, were infected and quarantined.

Drives Wedge to the Sea.

The freeing of all of South Carolina is significant, because it is the first Atlantic Coast State to be wholly liberated. It marks the driving of a wedge to the sea, just as last year the freeing of all of Mississippi drove a wedge to the Gulf. The tick map, changed to accord with the December releases, shows how the long battle is being won. In place of the solid band of red that 12 years ago covered all the South, there is a broad ribbon of white to the Gulf, another to the Atlantic, and white areas through all the territory that in 1906 was closed to the unrestricted production and movement of cattle.

Tick Fight a War Measure.

That tick eradication has been recognized as a war measure was shown by an emergency appropriation by Congress to provide additional men for the work. As a result of the special funds, added to the regular appropriation, it was possible during 1918 to attack the tick with a larger force than ever before. On July 1, 1918, there were at work 354 inspectors of the Bureau of Animal Industry representing the Federal Government; 353 State inspectors; and 1,490 county inspectors. They supervised 6,680,232 dippings of cattle during that month in the 26,976 dipping vats that were available. The method of eradication followed this year was the same as that adopted early in the campaign, consisting of systematic dipping in a standardized arsenical solution of all cattle in a community at regular intervals throughout the season.

Not only does 1918 break all records for territory released, but it sets a new high mark in the number of cattle dippings. Dippings in the first 10 months of 1918 numbered 39,263,867. Dippings in the entire year of 1917, the next highest, numbered only 28,931,504. The largest number of cattle dippings and the largest area released, both in the same year, gives strength to the doctrine that the cattle tick goes out where the dipping vat goes in.

Why Tick Eradication Pays.

Does tick eradication pay? The question has been answered in every community freed of ticks by better cattle, better agriculture in general, better prices, and higher real estate values. The cost of eradication has been found to be from 18 to 50 cents a head of cattle, while the increased value of each animal is greatly in excess of this, one canvass having resulted in an estimated average increase of $9.76 a head. Added to the strictly monetary advantage is the feeling of satisfaction of the cattle raiser when he knows that his animals are converting their food into flesh and milk and not into blood-sucking parasites, and that his cattle are free to be sold anywhere in the United States on equal terms with all others.

Then and Now.

When the fight was begun against the tick the movement of cattle from all the South for slaughter and other purposes was restricted by Federal regulation, the animal population was of inferior quality, good breeding stock could not safely be imported to improve the breeds, because of the susceptibility of imported cattle to the parasite, the dairy industry was insignificant, general agriculture was retarded through the presence of the tick, and the belief prevailed generally through the South that the ticks could not be exterminated.

On December 1 just 63 per cent of the original quarantined area will have been freed from ticks and quarantine, the quality of cattle, as well as their numbers, has risen steadily in the freed areas, the dairy industry has developed greatly, agriculture in general has thrown off a discouraging impediment, better blood is being used every year to improve the breeds, and it has been proved beyond all doubt that the tick not only can be exterminated but that before many years, with a continuation of Federal, State, and

HOW FIGHT AGAINST CATTLE TICK IS BEING WON.

State	Counties infected July 1, 1906.	Counties infected Dec. 1, 1918.		Counties released.		Area infected July 1, 1906.	Area infected Dec. 1, 1918.	Area released.	
		Whole.	Part.	Whole.	Part.				
	No.	*No.*	*No.*	*No.*	*No.*	*Sq. miles.*	*Sq. miles.*	*Sq. miles.*	*P. ct.*
Alabama	67	23	3	41	3	51,279	17,816	33,463	65
Arkansas	75	25	4	46	4	52,525	18,768	33,757	60
California	15			15		79,924		79,924	100
Florida	51	45		6		54,861	45,216	9,645	18
Georgia	149	59		90		57,438	27,706	29,732	52
Kentucky	2			2		841		841	100
Louisiana	65	17	4	44	4	45,409	14,332	31,077	68
Mississippi	81			81		46,362		46,362	100
Missouri	4			4		1,386		1,386	100
North Carolina	75	19	1	55	1	37,365	7,691	29,674	79
Oklahoma	[1] 61	11	5	40	10	47,890	13,628	34,262	71
South Carolina	44			44		30,495		30,495	100
Tennessee	42			42		16,987		16,987	100
Texas	198	130	9	59	9	191,885	123,193	68,692	36
Virginia	30	3	1	26	1	13,918	1,686	12,232	88
Total	958	331	27	595	32	728,565	270,036	458,529	63

[1] Only portions of 5 of the 61 counties were quarantined.

county cooperation, and the continued efforts and interest of the individual farmers, the tick will be driven into the Gulf of Mexico never to return.

This Year's Releases.

The areas to be released this year follow:

Alabama, 4 counties, 2,102 square miles; Arkansas, 2 counties and 2 parts of counties, 2,184 square miles; Florida, 2 counties and 1 part of a county, 4,745 square miles; Georgia, 20 counties, 7,618 square miles; Louisiana, 29 counties and 6 parts of counties, 23,492 square miles; North Carolina, 2 counties and 1 part of a county, 1,983 square miles; Oklahoma, 8 counties and 13 parts of counties, 8,749 square miles; South Carolina, 10 counties, 8,739 square miles; Texas (south), 3 counties and 4 parts of counties, 3,884 square miles; Texas (north), 13 counties and 6 parts of counties, 15,841 square miles.

The areas remaining under quarantine after December 1 follow:

Alabama, 17,816 square miles; Arkansas, 18,768 square miles; Florida, 45,216 square miles; Georgia, 27,706 square miles; Louisiana, 14,332 square miles; North Carolina, 7,691 square miles; Oklahoma, 13,628 square miles; Texas, 123,193 square miles; Virginia, 1,686 square miles.

Lifts Cattle Tick Quarantine in Nine States; Counties Named

All remaining quarantined areas in South Carolina and 116 counties and parts of counties in eight other southern States—in all 79,217 square miles—are to be released December 1 from Federal quarantine against the cattle fever tick, according to an order signed by the Secretary of Agriculture.

The counties to be released follow:

Alabama.

Coffee, Conecuh, Dale, and Monroe counties. Total area to be released in State, 2,102 square miles.

Arkansas.

Chicot and Stone counties, and parts of Desha and Faulkner counties. Total area to be released in State, 2,184 square miles.

Florida.

Lake and Orange counties, and part of Palm Beach County. Total area to be released in State, 4,745 square miles.

Georgia.

Chattahoochee, Grady, Harris, Haralson, Heard, Houston, Lee, Lowndes, Meriwether, Mitchell, Pike, Polk, Quitman, Randolph, Stewart, Talbot, Terrell, Thomas, Upson, and Warren counties. Total area to be released in State, 7,618 square miles.

Louisiana.

Allen, Avoyelles, Beauregard, Bienville, Calcasieu, Caldwell, Cameron, Catahoula, Claiborne, De Sota, East Baton Rouge, Grant, Jackson, Jefferson, Lafourche, La Salle, Morehouse, Red River, Richland, Sabine, St. Bernard, St. Charles, St. Helena, Tangipahoa, Terrebonne, Union, Vernon, Webster, West Baton Rouge, parts of Ascension, Iberville, St. James, and St. John, and the remainder of Orleans and Ouachita parishes. Total area to be released in State, 23,492 square miles.

North Carolina.

Brunswick and Craven, and the remainder of Columbus County. Total area to be released in State, 1,983 square miles.

Oklahoma.

Garvin, Hughes, Jefferson, McIntosh, Marshall, Murray, Pontotoc and Seminole counties; parts of Cherokee, Haskell, Johnston, Love and Muskogee Counties, and the remainder of Adair, Creek, McClain, Mayes, Okmulgee, Osage, Pottawatomie, and Tulsa counties. Total area to be released in State, 8,749 square miles.

South Carolina.

Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper, and Williamsburg counties. Total area to be released in State, 8,739 square miles.

Texas (South).

Galveston, Harris, and Houston counties, and parts of Brooks, Duval, Jim Wells, and Willacy Counties. Total area to be released, 3,884 square miles.

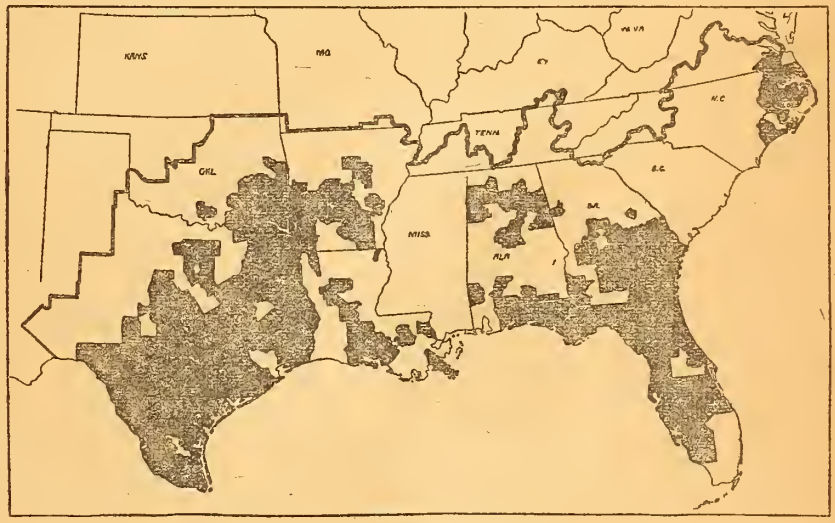
Texas (North).

Bosque, Callahan, Coleman, Collin, Erath, Ellis, Grayson, Hunt, Kaufman, Mason, McLennan, Palo Pinto, and Rockwall counties; parts of Hood, Johnson, McCullough, and Parker counties; and the remainders of Crockett and Tom Green counties. Total area to be released, 15,841 square miles.

Other Regions to Benefit From Cattle Tick Releases in South

The cattle tick releases of 1918 will be of great importance to cattle raisers and dealers of Northern and Western States, as well as those of the South. They will not only remove restrictions against shipment of cattle from the South, but will open new markets for northern cattle.

In regions infested by the cattle tick it has not been held safe to import better stock for the improvement of southern herds, because cattle freshly brought in from regions where the tick is not prevalent are especially prone to sicken and die from the fever germs carried by the tick. The Federal quarantine against the cattle tick, on the other hand, has prevented the shipment of cattle from infested sections for use as stockers and feeders in free territory and permits their shipment into free territory only under quarantine restrictions and for immediate slaughter.



THE CATTLE TICK WAR MAP.

Heavy black line shows battle front in 1906 when Federal quarantine was established. Area shown in white below the line indicates territory taken by antitick forces and now free from quarantine. Area in black still tick infested.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems that Will Claim the Attention of American Farmers During the Next Few Weeks

NORTH AND WEST

The Office of Extension Work North and West offers the following suggestions for the consideration of farmers in the eastern, northern, and western groups of States:

A CHANGING ATTITUDE IN FARMING.

Farming is being adapted more and more to a business basis, and farmers are being recognized by the business men of the cities as having real business standing. The expression, "Farmers and business men," has become "Farmers and other business men." Once the young man learned the farming trade by working mostly with his father and brothers; now he learns farming in that way and also in school and college, and by the study and practice of modern business methods, so that he becomes a different type of farmer from the countryman of one or two generations ago.

The demand of the present farmer has brought about a new method of dealing with him and supplying him with any available information he may desire. It is recognized that it is not good practice to load farmers with advice—to tell them what to do and when to do it—and this changed attitude brings more satisfactory relations to all concerned. It has resulted in freer consultation and the arrival at safer conclusions and more correct practices than could possibly come from working separately.

FEEDING AMERICA FROM ITS OWN BACKYARD.

No less than one-fifth of the total food elements consumed by the people of this country is obtained from commercial and home vegetable gardens. Under the present food situation of the world, the tendency and the need in this country is to increase the consumption of fresh vegetables.

America's cities, towns, and villages almost without exception are full of large back yards and vacant lots that have yielded little or nothing. We have taken pride, too, in our spacious home grounds, but have given little thought to turning them to account. Now, the food situation demands that every foot of ground suitably located be made to produce to its utmost capacity. City people have responded heartily in carrying out the Government's program to use such back yards and vacant lots for gardens. Yet a survey made in a number of cities where such gardening was carried on intensively shows that less than one-half of the available land has been utilized. As commercial gardeners can not under present labor conditions raise enough vegetables to supply the demand in our cities, towns, and villages, it is urged that people in cities, towns, and villages increase their efforts during the coming year.

The extension forces of the Department of Agriculture and of the State agricultural colleges are using all means at their command to bring about the raising of more and better home gardens in 1919. Hundreds of county agricultural agents and assistant agents, the farm bureaus, the home demonstration agents, the boys' and girls' club leaders, are urging the need of increased production, especially among those who in ordinary times are not producers of garden vegetables. Get the garden habit in 1919.

SAVE SEED AND SAVE TROUBLE.

If seed grain for sowing next spring has not yet been saved, it should be done at once, for it is hard to find good seed after most of the crop has been hauled to town and sold. A good fanning mill is a great help. If your own seed has become badly mixed, hunt up at once a neighbor who has pure seed.

It is best to stick to the old and well-known varieties. Beware of the man who wants you to buy a new variety at an enormous price. If the crop specialists in your State or in the Department of Agriculture have been recommending varieties especially adapted to your conditions, locate some of the seed. Ask your county agent, or your State extension director, or the United States Department of Agriculture about the varieties and where to get them.

SAVING GRAIN SORGHUM SEED.

If not already done, now is the time to store grain sorghum seed for planting next spring. Before thrashing select the best heads nearest to the type desired. String these heads on baling wire or put them in burlap bags. Then hang them to

(Continued on page 18.)

IN THE SOUTH

The following suggestions are from the Office of Extension Work South:

ORGANIZATION FOR INCREASED PRODUCTION.

During the war our most valuable lesson has been that good organization is necessary for best results. Our councils of defense and other organizations have helped. Remember that the extension service and the county agents and county home demonstration agents are anxious to serve you and your family. They can serve best and reach the greatest number of persons through organizations. In the large majority of the counties in the South there is a county organization and community organizations of farm families working to help the farmers of the county and to make the work of the county agent and the county home demonstration agent more effective. Sometimes this county organization is called a county council, an advisory council, a farm bureau, or a board of control.

Just now a campaign for better organization is on. Get in touch with the county agent; find out about organizations; join the local organization if there is one; if not, help form one. Help your county and the county agent to meet all the hard problems of next year in farming by allying yourself with an organized body of people who are working out a county plan of farm and home work for 1919.

Get ready for the food-production campaign of 1919 which begins early in January; be a part of it through organization as suggested, and get familiar with the needs of the world so that you may plan your year's work along safe lines.

LOOK AFTER THE SEED SUPPLY.

The important part the use of improved seeds of all farm crops has played on the quality and yield has been fully established by numerous experiments and demonstrations in recent years. In many instances the increases due to use of good seed have been very striking. There will, no doubt, be a scarcity of high-grade seeds of several staple crops next season. For this reason it is worth while to call the attention of every farmer to the necessity of selecting and properly storing a suffi-

cient supply for home use of every kind of seed available. After deciding what crops are to be planted next year, the farmer will do well to locate and purchase seeds now, unless he has them of his own growing. Failure to order now may result in getting only inferior seeds, as the dealer usually fills early orders with the best.

TERRACING ON THE FARM.

The maintaining of soil fertility should be one of the supreme aims of every farmer. The most universal source of loss is from soil washing. Nothing will do more to prevent this loss than to establish a good system of broad-base terraces. This, in conjunction with a well-planned cropping system, will not only maintain but increase soil fertility. Terracing can be done at any time during the year when the lands are free of growing crops. In the cotton States the weather is rarely too severe during the winter to prevent this work from being done. Those who have not already terraced their farms should see the county agent and get his advice and help along this line.

FALL PLANTINGS IN WEST TEXAS AND OKLAHOMA.

Seasonal rains have fallen in nearly all of the drier areas of western Texas and Oklahoma producing sufficient moisture to germinate fall grain. Wherever there is sufficient moisture, farmers should plant either winter rye, wheat, or oats for the benefit of the pasture they will secure from it. If it is desired to plant the land in corn or cotton in the spring, the crop can be harvested for hay, or it can be turned under for green manure. As nearly all these farm lands are deficient in humus, the latter plan is recommended wherever possible. Winter oats are especially valuable as a food for dairy cows, breeding ewes, or sows and pigs.

OVERHAUL AND CAREFULLY STORE FARM MACHINERY.

The high cost of farm machinery undoubtedly has resulted in the carrying over of a large amount of old equipment for use next spring. With the fall work well out of the way, attention should now be given to the repair of all this equipment. Farmers' Bulletins Nos. 946 and 947 give detailed information as to the repair of plows, harrows, mowers, and binders. Copies of these bulletins will be sent to any one making application for the same to the Division of Publications.

Special attention should be given to the iron boxes in the hubs in the iron wheels of plows, planters, cultivators, hay rakes, and similar tools. These boxes are replaceable and can easily be removed by unscrewing the large nut on the outside of the wheel that holds these boxes in place. When this nut is removed a few taps of the hammer will usually drive the box out of the hub and a new one can easily be inserted. These boxes are numbered, so that it is not a difficult matter to obtain duplicates from the local implement dealer. However, it may be necessary to order these from supply houses in distant cities, and it is advisable to attend to this matter at once, so that the new boxes can be put in the wheel before the tools are needed for next spring's work.

If the axles are badly worn on the underside, sometimes they can be reversed and turned upside down, or they can be replaced with new axles. Where this is impossible, they can oftentimes be repaired by using Babbitt metal.

After the implement has been thoroughly overhauled and repaired, it should be given a good coat of paint. If the old paint is gone or badly worn, it is advisable to apply a coat of linseed oil with a small amount of paint as the first coat over the woodwork. After this is thoroughly dried, a second coat can be applied over the entire machine. Moldboards and shares of plows, the steel teeth or sweeps of cultivators, should be smeared with cup grease or wagon grease so as to prevent their rusting. Put the implements under cover, where they will be protected from the weather. Oftentimes the implement can be taken apart or the wheels removed to economize space for storage.

GATHER BLACK WALNUTS FOR PLANTING.

Black walnut is one of the most profitable woodland and pasture trees. It is rapidly becoming scarce on account of the important part it has played in the war, and the strong demand for the wood for cabinet material, caskets, musical instruments, furniture, etc.

The nuts for planting should be selected, so far as possible, from vigorous trees producing good-sized nuts in abundance. If squirrels and hogs are not troublesome, the nuts may be planted this fall, putting two nuts in a hole and covering with about 2 inches of soil well firmed. In many places the safest method is probably to keep the nuts over winter and plant them in the spring. For this purpose a pit, dug 8 to 12 inches deep in a well-drained, cool location, is a desirable storage place. A layer of nuts, two nuts deep, is covered with an inch of sand, and so on until all the nuts are stored, after which soil should be mounded over the pit to shed excess moisture. Nuts mixed with sand will keep quite satisfactorily in a cool cellar. A bushel of walnuts contains from 1,100 to 1,400, depending upon the size of the nuts, or enough to plant an acre, using two nuts in each hole, spacing the latter 8 feet apart each way.

CUTTING WOOD FOR FUEL.

Many farmers now have their home supplies of wood for winter fuel, but the town markets will keep active for several months, and thousands of cords of wood will still be cut for local use on the farm.

In cutting cordwood, an excellent opportunity is afforded to improve the woodland by removing the poorer, less valuable trees, leaving the better ones to grow. Many farmers who have never before given this subject a thought are taking a real interest, because they see how quickly nature responds in better growth when given a little guidance and aid.

The kinds of material to be removed for firewood include the old trees unsuitable for lumber, crooked trees crowding out straight ones, badly diseased and decaying trees, small trees overtopped and stunted by larger and better ones, dead trees that are mostly sound, tree tops left from former cuttings, and trees of the less valuable kinds, where others of greater value are present which need the room and will prove faster money-making trees. Handling farm woodlands rightly is an indispensable part of profitable farm management.

If lists of manufacturers or other information are desired regarding portable wood-sawing outfits, and wood-splitting and tree-felling machinery, the Forest Service of the Department of Agriculture will be glad to furnish such material upon request.

UTILIZE ROUGHAGES WITH BEEF CATTLE.

The coming of peace will increase, not diminish, the demands made on the farmers of this country for the saving of grain and utilization to the fullest extent of all coarse roughages such as cheap hay, straw, and stover in all its various forms. The waste of stover or other roughages in the field will be a reproach and one which is emphasized all the more by the high price of hay, which, to a large extent, may be replaced by them. To utilize corn stover to best advantage it should be used early in the winter, saving other roughages until later. Other coarse

roughages may also be used to better advantage by feeding them to dry cows and feeder steers, saving the more desirable roughages for breeding animals and calves. Dry cows and steers may be wintered largely on roughages alone by beginning to feed them earlier in the winter, before they begin to lose weight. This is particularly true of the cattle shipped into the southwestern States from the drought area of the Southwest. These cattle are in somewhat thin condition and should be fed more liberally than native cattle, at least until well started through the winter feeding period.

FEED DRY ROUGHAGE FIRST, THEN SILAGE

Before starting to feed silage to beef cattle this winter, a careful estimate of the total amount on hand should be made, as it is not a good practice to feed silage in such a way as to exhaust the supply and be compelled to feed dry roughage following the silage before turning to pasture in the spring. If a shortage is anticipated there are two ways to meet the situation—either feed dry roughages altogether for a time at the beginning and keep the silage until the latter part of the feeding period, or feed a small amount of silage with other roughage throughout the winter.

Sufficient silage and other roughages should be provided so as to begin feeding the cattle by the 1st of January at least, and to last until the 1st to the 15th of April. This later date is suggested so as to keep the animals off the grass in the spring and protect the pasture as long as possible. Best results from feeding silage are obtained when some dry roughage is fed along with it. Unless legume hays are used a small amount of cottonseed meal, one-half to one pound, should be used.

PROTECT BEEF CATTLE IN WINTER.

During the winter beef steers should be kept in a dry lot and provided with a windbreak from the north or given free access to an open shed. In some sections of the South weather conditions alone may not justify open sheds, but when the saving of feed and manure and the protection of pastures from tramping in wet weather are considered, such sheds will prove to be profitable investments. Breeding animals may require even more protection during severe weather than an open shed would provide.

DATES TO BREED BEEF COWS.

In order to have a uniform herd of calves, cows should be bred at a definite time of year with this point in view. For fall and early winter calves (November and December), cows should be bred during February and March. For spring calves (February and March), which in most cases is a more desirable date to have the calves dropped, the cows should be bred during May and June. Where milk for family use during winter months is not an important consideration cows may be more cheaply wintered and calves escape flies and hot weather when dropped at that time. In all breeding operations pure-bred sires only should be used.

Breeders of pure-bred cattle who desire to grow calves for exhibition should breed their cows from the 1st to the 15th of December to produce calves of senior classification, and from the 1st to the 15th of April for calves of junior rating.

A WINTER GARDEN FOR EVERY SOUTHERN HOME.

Something in the form of green vegetables may be had from the outdoor garden every day of the winter months throughout the greater part of the Southern States. Perhaps it may be nothing more than turnip greens or a dish of boiled kale, but it serves the purpose of giving the family much needed green food and puts iron into the blood. There is perhaps no vegetable more delicate or appetizing than the universally grown collards of the southern gardens. Fall-planted spinach may be cut at any time during the winter, even when the ground may be slightly frozen, and it may be necessary to plunge the freshly cut spinach into cold water to remove the frost.

Certain of the more hardy varieties of lettuce, like Big Boston, can be grown during the winter with slight protection by means of straw or boards set at an angle on the north side of the row. Onion sets planted now will give an abundance of early green onions for table use. There are quite a number of crops that will make a slow growth during the winter and furnish a constant supply of green food for the table. Get the garden habit and keep the southern garden going every month in the year.

PROTECT SWEET POTATOES IN STORAGE.

Great quantities of sweet potatoes are lost every year in the Southern States as a result of careless methods of storing. We are going to need every pound of food that is in this country before another crop year comes around, and it is essential that the sweet-potato crop be properly cared for. At this time the crop is practically all dug and sun dried, and has either been stored in pits or in houses. It is safe to estimate that at least one-half of the sweet potatoes that are banked or stored in pits are lost from one cause or another. Potatoes stored in houses are often lost by being allowed to get chilled during a brief period of cold weather. Where the potato house is provided with stove heat it is always safe to kindle a little fire in the stoves during a cold snap even though ventilation is necessary to keep the general temperature of the house from going too high.

Sweet potatoes stored in banks or kilns may be protected in two ways: First, by placing a roof of boards over the bank so that the water will not soak into it; second, by adding alternate layers of straw and earth until sufficient covering is provided to keep the potatoes warm during the cold weather. It should be borne in mind that some means should be provided for the escape of moisture from the bank as it is given off by the potatoes. This can best be accomplished by placing an old stovepipe or small wooden ventilator in the top of the bank, this to be closed by stuffing it with paper or an old bag during cold weather. Protect the sweet potatoes, and if there are more than needed for home use they will find a ready market at a good price.

FARM RECORDS.

Farmers who are not keeping farm records should seek the advice of the county agent or State farm management specialist as to a suitable form of record and the method of keeping it, and be ready at the beginning of the farm year to make prompt entries of things done during the year. This may be a record of just one enterprise or of all the operations of the farm. The record will be found very helpful in finding out the strong and weak points of the year's business, and in deciding on any changes that may be desirable in the organization and management for the next year. Farmers who are already keeping records should see that the accounts are summarized and the new inventories promptly entered for the beginning of the next year's business. Farmers who do not keep books will find it difficult to make proper returns under the Federal income-tax law.

Be sure that the male at the head of the flock is purebred.

Purebred poultry means uniformity of products. Uniformity of products means increased profits, if products are properly marketed.

Given the same care and feed, purebred fowls make a greater profit than mongrels.

Cotton Distribution Committee Obtains Removal of Restrictions on Exports

The Committee on Cotton Distribution, believing that the cessation of hostilities upon terms making it practically impossible for the central powers to renew hostilities largely removed the necessity for restrictions on the exportation of cotton, on November 16 and November 19 addressed letters to the War Trade Board on that subject. The War Trade Board replied to these letters on November 20, advising of the withdrawal of certain regulations regarding the exportation of cotton and inclosing a copy of a public announcement regarding such withdrawal.

Following is the letter of the Committee on Cotton Distribution of November 16:

"Hon. VANCE C. MCCORMICK,
"*Chairman War Trade Board,*
"*Washington, D. C.*

"DEAR SIR: Reference is made to the telegram which you received to-day from New Orleans, signed by more than 50 cotton dealers in that market, and to a request from your board that the Committee on Cotton Distribution make recommendations relative to the subject-matter of this telegram. I have received a similar telegram.

"The need for cotton by our allies, the neutrals, and the central powers is very great. Many of their spindles are idle. We are preparing to furnish them food. Along with food they must have work to do, and it is necessary, to this end, that they have raw materials which they may work up into manufactured products. Further, the cessation of hostilities will release additional labor for their mills. The stocks of raw cotton in Europe are very greatly depleted, little reserve stock being left on hand. The representatives of foreign nations with whom we have conferred have recognized and stated very frankly their great need for cotton. They are ready to buy both to replenish their reserve stocks and to operate their machinery.

"With the coming of peace, through the operation of numerous factors, such, for instance, as the release of tonnage from war activities, the stoppage of sinkings by submarines, the building of new tonnage, and the release of neutral and enemy country tonnage, a great deal of additional tonnage will become available for commerce. With the keen need that is felt for cotton, there is no doubt that a substantial part of this tonnage will be used for carrying this staple. If the exportation of cotton is facilitated through the ready issuance of export licenses and otherwise, it is altogether likely that even tramp steamers will carry it over from this country.

"The cotton situation in the South at the present time is very serious. * * * There is no doubt, of course, due to conditions already pointed out, that the requirements of the world for the present season will be largely in excess of requirements for the past season. However, during the present critical period of transition from war to peace there is great stagnation, and it is very essential that everything possible be done to alleviate this condition immediately. This is the season during which the producers of cotton harvest their product. Their financial obligations become due during the fall season, and they must sell their product in order to cancel these obligations. With little movement for cotton, either they can not sell it or they are compelled to sell it at a price which represents great sacrifice. This condition touches directly about 3,000,000 citizens of this country, as cotton is produced by a very large number of small producers, and not by a very small number of large producers, as in the case of many other commodities. If the cotton is sold at this season at a sacrifice, the result is a loss to those who are least able to bear it. It must also be borne in mind that an unsatisfactory price at this season of the year will result in a curtailment of production next year, and in the consequent reduction in the cotton available for clothing the world. Moreover, the question involved concerns the Nation as a whole, and not merely the producers, since cotton in normal times forms our most important article of export.

"In view of the conditions outlined above, it is recommended that all possible steps be taken to facilitate the exportation of cotton, and that, so far as is consistent with sound public policy, limitations or restrictions upon the granting of licenses shall be removed. Particularly with reference to Great Britain, France, Italy, Belgium, Spain, Portugal, and Japan, it appears that a very generous policy as regards export licenses ought to be adopted. With reference to Holland, Denmark, Norway, Sweden, and Switzerland, it is recommended that, until the allies and the United States have in their hands guarantees of the acceptance by Germany of the armistice terms, exportation be allowed under licenses on the basis of their pre-war consumption, or in accordance with the trade agreements now in force with these countries. In any event, it is our opinion that these neutrals should be permitted at least to buy and store in this country the quantity of cotton due them under the present trade agreements. After the guarantees required of Germany under the armistice terms are in our hands, we are of the opinion that exports of cotton to neutral groups should be permitted on substantially the same terms as exports to our allies. * * *

"Very truly, yours,
"CHARLES J. BRAND, *Chairman.*"

War Trade Board's Reply.

Following is the letter of the War Trade Board, dated November 20, in reply:

"MR. CHARLES J. BRAND,
"*Chairman, Committee on Cotton Distribution, War Industries Board, Washington, D. C.*

"DEAR SIR: We beg to acknowledge receipt of your letters of November 16 and November 19 referring to the exportation of cotton. We also confirm our understanding of the recommendations which we have adopted, agreed at the conference with your committee and Senator Smith yesterday evening as follows:

"We are withdrawing the regulation requiring that for securing an export license the grade and staple be specified, and other requirements which were adopted some weeks ago and published in the War Trade Board regulation effective October 14.

"We are also withdrawing the requirements for specific export licenses to Great Britain, France, Italy, Belgium, and Japan.

"In regard to shipments of cotton to Spain we are withdrawing the regulation whereby the quantity which should be shipped to Spain was limited and allotted among our various shippers.

"We are advising the representatives here of the European neutral countries with which we have entered into agreements that they may purchase their entire annual requirements.

"We have consulted with the representatives of the countries above mentioned associated with us in the war and, notwithstanding considerable inconvenience in administration is caused by our acting quickly, we have received their hearty cooperation.

"We are attaching hereto a proposed press notice which we desire to release at the earliest possible moment, and will be obliged if you will approve the same,

making any corrections or alterations that you think advisable.

"Yours, very truly,

"BEAVER WHITE."

Regulations Withdrawn.

Following is the official announcement of the withdrawal of regulations, which was approved by the committee on cotton distribution:

"The War Trade Board, in cooperation with the committee on cotton distribution of the War Industries Board, make the following announcement:

"1. The regulation regarding exports of raw cotton to Spain (W. T. B. R. 319; Nov. 15, 1918), whereby the quantity exportable to Spain was limited and allotted among the various shippers, is withdrawn, effective November 22, 1918, and applications will be considered looking toward the granting of licenses freely.

"2. It is further announced that on and after December 2, 1918, no individual licenses will be required for the exportation of raw cotton to Great Britain, France, Italy, Belgium, and Japan. A special export license (No. RAC-57) will be issued to the proper custom officials at point of exit, who will be authorized to pass shipments in accordance therewith.

"3. Applications to export raw cotton to other destinations will be considered and granted freely, and where international agreements exist licenses will be granted in accordance therewith.

"4. The regulation affecting the exportation of raw cotton (W. T. B. R. 265; Oct. 11, 1918), which required that the grade and staple be specified on applications to export raw cotton, and that the applicant also disclose the existence of an actual sales contract, or that there had been a freight allotment or engagement is withdrawn, effective November 22, 1918."

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 14.*)

the rafters of the wagon shed or granary, or in some other dry, well-ventilated place until spring. Seed thrashed from heads stored in that way usually will germinate better than seed stored in the bin all winter. Good seed helps insure good stands.

SAVING FLAXSEED.

Present high prices for flaxseed will tempt many farmers to sell all they have. This will be especially true in the sections where last year's drought was severe and crop production small. Now is the time, however, to resist the temptation of fancy prices and to save enough good seed for next year. Always use the fanning mill, for flaxseed sometimes carries serious flax diseases, and mustard seed left in it will cause a beautiful yellow field, even though all that's yellow is not gold. The bright, clean, heavy seed left after thorough fanning will be most free from disease.

Store your seed in a dry place, for it has mucilage in its overcoat and sticks like glue if it gets wet.

Remember your neighbor when fanning flax; for he may need some of your seed. It will help him as well as your community if he gets good seed from you, instead of using the poor seed which he may have to buy if he waits until seeding time next spring. If you have good seed for sale, tell your county agent and your State extension director. Owners of good seed of wilt-resistant strains should try to sell it only for seed purposes, rather than to let it go to the elevator to be sold for oil making, as farmers have not been able during the last two years to buy enough seed of wilt-resistant strains.

HOTBEDS AND COLD FRAMES.

The surest way to have an early garden next spring is to prepare a hotbed and a cold frame, or a combination of the two, before the ground freezes this fall. After the ground freezes hard, it will be impossible to dig a pit properly and construct the frame preparatory to making a hotbed. The essentials are a framework of boards and sash or light canvas for a covering. Standard hotbed sash are 3 by 6 feet in size, and the frame can be made to fit one, two, or more of these sash. The framework of boards should be 18 to 24 inches high at the back or north side, and 10 to 12 inches high at the front or south side. The frame should be so arranged that the sash will not only slide on ways but also may be lifted or tilted at any angle for ventilation. The framework should be painted, and the sash should be given at least two coats of white lead and linseed oil, with a little drier added before the glass is put in. In glazing hotbed sash the putty is first spread in the grooves on the sash bars, the glass then being bedded in the putty and well pressed down. The bottom light or glass in each row should be put in first; then the second light should overlap the first one about one-fourth of an inch; and so on until each section of the sash is filled, the last piece of glass being cut to fill out the remaining space. Each piece of glass is fastened in place by means of special glazing points driven into the wooden sash bar.

The hotbed pit should be 12 to 14 inches deep, and just a trifle smaller than the framework of boards. The dirt removed from the pit is used to bank around the frame. The pit may be filled with leaves during the early winter to prevent the soil freezing, and the sash stored where they will be protected from the weather until time to start plants in the bed. If this part of the work be done now, there will be no difficulty in getting an early start for a spring garden.

TO GET MOST FROM MANURE.

The sooner manure is spread on the land after being made the greater is its value, provided the land is level, or if hilly not frozen. So much is to be gained by early application under these conditions, and farmers have sometimes been so urged to haul manure immediately after making without limitations of conditions, that much loss of fertilizer has resulted from spreading it on frozen hilly ground either before or after snow had fallen. Manure-colored surface water flowing to the streams during a winter thaw is a sure indication of this waste of the most soluble and valuable parts of the manure. If, however, manure is spread on hilly land long enough before freezing, for rain to carry the soluble parts into the soil, almost no waste occurs. And the same is true on light snow, if the ground underneath is not frozen. But it should be borne in mind that the saving in labor, by hauling in winter when teams are not busy, is not sufficient to offset the loss from washing on frozen, hilly ground, provided the manure can be kept under cover, or even well tramped on an open level yard or feed lot.

TOP DRESSING WINTER WHEAT WITH MANURE.

Farmers have been very busy and short of help during the past season. Doubtless in many cases the manure pile is still in the barnyard. There was neither time nor help at hand to spread this manure at the usual time, and as a result the wheat may now be growing on land that is not as fertile as is desirable.

In such cases it will be of great help to the wheat crop and of profit to the farmer if manure, or straw not needed for other purposes, is spread evenly and thinly on the more level wheat fields this winter. Such application should be made when the ground is dry or frozen. In case fertilizer has not been applied re-

cently to the land and it is known that phosphorus is needed, 40 or 50 pounds of acid phosphate may well be added to each load of manure before spreading. The application of manure should not be heavy—probably not over 6 tons to the acre in any case—and it should be spread evenly so as not to smother the plants.

Finds Boys' Club Training Helps Make Good Military Men for U. S.

The training boys get in the agricultural clubs conducted by the United State Department of Agriculture and the State agricultural colleges makes them the most desirable kind of men for military service, in the opinion of a former West Virginia club member now in the Navy.

Writing to the States Relations Service, the former club member lays stress upon the fundamental principles upon which agricultural clubs are based. The boys' agricultural clubs have as a part of their badge the four-leaf clover with four H's, one on each leaf, indicating the equal training of the head, hand, heart, and health. The West Virginia sailor says this is just the kind of training which makes a good soldier or sailor. He says:

"Let us recall the training we were receiving from the agricultural clubs along four great paths: First, the head, which must of necessity be well filled with gray matter that will cause a recruit to be obedient and respect discipline; second, the hands, which are governed by the mind and do so much in military conflict; third, the heart, which must be clean and strong to make a soldier determined and unflinching; and, fourth, the health, which plays a very important part in making men efficient."

All of these are qualities which go to make up a good military man. Also, the writer pays tribute to the club members in his State who have been so busy helping in the great job of food production at a time when the farms of the country are short of labor.

"They have met the situation squarely," he writes, "and victory is ours, with them as a dominant factor in helping to secure it."

Average wheat prices in the past year, as estimated by the Bureau of Crop Estimates and excluding States producing less than 1,000,000 bushels, ranged from $1.83 a bushel in Utah to $2.66 in South Carolina.

INCREASED RETURNS RECEIVED FROM COWS IN ASSOCIATIONS

Tested Animals Reported to Give Twice as Much Net Profit

Large Producers Least Affected By Higher Cost of Feeds; Better Breeding Aided By Cooperation of Farmers

Milk produced by 5,587 cows in 40 cow-testing associations, studied by specialists of the United States Department of Agriculture, averaged in a year 247 pounds of butter fat per cow. This is considerably above the average production of all the dairy cows in the United States, which is estimated at 160 pounds of butter fat a year. A study of the records of the associations showed that the production of 160 pounds of butter fat a year gave an increase of $23 over cost of feed, while the average income over cost of feed from cows that produced 247 pounds was $47, or a little more than twice as much.

Though the dairymen who join cow-testing associations are thought to be more progressive than the average, dairy specialists in the United States Department of Agriculture say the fine showing made by the cows in associations must be credited, in large measure, to association work.

Returns Exceed Cost.

Certainly the cow-testing associations return many dollars more than they cost. It is encouraging, they say, to know that the cow-testing association records show that the large-producing dairy cows are the least affected by the increased cost of feeds. Therefore, every dairyman should aim to keep all his good cows, or to place them where they will continue the economical production of human food. This economical production can be obtained not only through careful selection of dairy cattle and skillful feeding, but through intelligent breeding.

Better Breeding Promoted

While the cow-testing association gives its members aid in each of these three essentials, it is particularly beneficial in promoting better breeding. This is very marked when the members also belong to a bull association. Not every dairy farmer can afford to own a good registered bull, but the bull association has made it possible for each of its members to own a share in one. A farmer for $50 may buy a scrub bull, but if five farmers will join a bull association and each invest $50 they may own a $250 pure-bred bull.

LIMIT OFF LIME.

The United States Department of Agriculture calls the attention of farmers to the fact that they are now free to buy all the lime needed for fertilizing their soil, unless the State director of extension or other State agricultural official finds it necessary to exercise control of purchases.

The new conditions result from modification by the War Industries Board of its Circular No. 9, which covered the use of lime for agricultural purposes, and which required farmers to apply for permits when they wished to buy more than one ton of agricultural lime in a year.

Help Given by Weather Bureau in Government's War Activities

Briefly summarized, the war activities of the Weather Bureau, United States Department of Agriculture, were as follows:

Furnishes forecasts and warnings to Army cantonments and camps and naval bases, and to railroads in connection with handling and transportation of food and other supplies.

Supplies meteorological data to the Surgeon General's Office for use in connection with studies of dietetics, camp sanitation, hygiene, and the like.

Makes aerological investigations to secure free-air data for aviation and artillery uses.

Conducted special work with kites to test searchlights at night and to aid artillerists in detecting moving objects in the air.

Cooperates with the Signal Corps in training balloonists and enlisted men in meteorological work.

Reports vessels entering and leaving Atlantic, Gulf, and Pacific coast ports.

Transmits naval and military business over its telegraph and cable lines.

Assisted in the organization of gas and flame regiment.

Transferred to War Department, for service in France, meteorological experts and forecasters.

Hunting on Sunday is prohibited in all States and Provinces east of the one hundred and fifth meridian except Illinois, Louisiana, Michigan, Texas, Wisconsin, and Quebec. Mondays constitute a close season for waterfowl in Ohio and locally in Maryland and North Carolina; and certain other week days for waterfowl in several favorite ducking grounds in Maryland, Virginia, and North Carolina.

Cash and Character the Returns on Boys' Club Work in the South

Agricultural production is not the sum total of achievement by members of boys' clubs in the South. Those youngsters below the Mason-Dixon line raise good crops; also, they raise fine baby beeves and standard pigs. Their sheep are of accredited breeds; their poultry is of the better types; and the gardens they cultivate are model gardens, many of them yielding very worth-while produce. In dollars and cents, the result of those boys' efforts annually mounts up to many thousands: in food supply it is of incalculable value to the 15 Southern States.

But this is only part of the story—a bare enumeration of some of the activities of those southern lads. The other part is, or should be, more interesting, for it deals with intangible commodities—character, high ideals, educational aspirations, civic pride—evolved from and developed through the training received in boys' clubs. In its effort to strengthen the agricultural extension organization the United States Department of Agriculture cites some instances to show the benefits of the boys' club work in the South.

Bonds and Bank Accounts.

In Texas there are 1,000 boys receiving higher education—the direct result of club membership. There are 20,000 club boys in that State who bought Liberty bonds, war-savings and thrift stamps. The same number belong to the Red Cross, and 2,000 have bank accounts. Members of the boys' clubs in Oklahoma, over 13,000, own war securities amounting to $112,818. Their bank deposits total $67,931.86. Also West Virginia has 1,500 club members who have bank accounts. Many own lands and several hundred are in colleges. Arkansas has a record of hundreds of former boys' club members who are in college, and what is more to their credit, paying their tuition with money earned from the sale of their agricultural products and prizes won in agricultural contests.

A number of the southern clubs have developed college professors, instructors in agricultural schools—men who learned the scientific method of farming and gained their experience in boys' clubs. Many club members are in the military service. "We have hundreds of club members who are officers in the United States Army," writes a Mississippi State agent. Nor have modern business methods been overlooked by those young husbandmen. In some of the States cooperative buying, selling, and marketing is the regular practice of boys' club members, and the use of banking facilities a common custom, the kind of banking, by the way, where the character and industry of the borrowers form the major part of the security. In this connection the testimony of the president of a bank in Mississippi is corroborative; says he: "So far as my information goes, there is not a single piece of bad paper in the State as a result of loans to club boys." These instances are taken at random.

The influence club boys exert upon their fathers and upon the farmers in their neighborhoods is very marked, State and county agents say. It is the kind of influence that, through practical demonstration, turns skeptics into converts; that makes progressive farmers out of "the-old-way-is-good-enough-for-me" types.

Influence of the Clubs.

But extension agents are not the only ones who note those transformations. Men of affairs have observed them, and right ready are they to tell of civic improvements, better schools, more active churches, marked increase in the demand for better merchandise, new business enterprises, pride in the appearance of their buildings, home grounds, the family acres, and a higher type of community morale—all brought about by boys' clubs and community cooperation.

Increased production, stimulation in every line of agricultural endeavor for the immediate and continued prosperity of their section is one of the important functions of boys' club work in the South. This is being accomplished by instruction and demonstration in correct agricultural methods by the extension service of the United States Department of Agriculture and the State agricultural colleges. And it is being done in the only way possible—through the organized efforts of the very boys who are to develop into progressive farmers and become the substantial producers of the future. However, quite as important a function of this work is the all-round development of the boys themselves. Great stress is laid upon this. Through the agency of these boys' clubs, the members are taught habits of thrift and industry. They are shown the real value of high character, the advantages of education, the possibilities of leadership, the dignity of labor, the importance of cooperation in civic affairs and respect for others' rights. The creditable desire for independence, for land ownership, and beauty and orderliness in land possessed is inculcated in them, that they may have the privilege of remaining upon the very soil that nurtured them and become important factors in their country's development.

Army Withdraws Request for Exclusive Military Use of Walnut

The Bureau of Aircraft Production and the Ordnance Department of the United States Army have issued the following joint notice:

"The necessity therefor having passed, the Ordnance Department and the Bureau of Aircraft Production hereby withdraw their request, made several months ago, that walnut stumpage be disposed of as a patriotic duty and that all walnut logs be, as far as possible, converted only into airplane propeller lumber and gunstock blanks. Effective immediately, therefore, the sale and purchase of stumpage or logs is viewed by them as purely a commercial transaction and the conversion of this wood into veneers and lumber for commercial purposes is, in their opinion, entirely proper.

"In giving this notice, these departments desire to convey to the owners of walnut stumpage and to the lumber fraternity their appreciation of the hearty cooperation which they have evidenced in this walnut war campaign and by which cooperation success in supplying the need during the national emergency was attained."

FOUR POINTS IN ROAD DRAGGING.

First, the road drag is the simplest and least expensive contrivance yet devised for maintaining roads constructed of earth or earthy material. Second, the successful operation of a road drag depends to a very great extent on the skill and intelligence of the operator. Third, the time to use the drag is when the material composing the road surface is sufficiently moist to compact readily under traffic after it has been moved by the drag and does not contain sufficient moisture for the traffic following the drag to produce mud. Fourth, dragging can not usually be so arranged as to keep teams employed all the time, and it is therefore desirable to have it done by interested persons who can find employment for themselves and teams when they are not engaged in dragging.

Personal Preference Should Decide Between Open Shed and Dairy Barn

"Cows consumed somewhat more feed and produced slightly more milk when kept in open sheds than in closed barns, while their increased production did not offset the extra cost of feed," reports the United States Department of Agriculture from the results of investigations conducted at Beltsville, Md.

"Which, the open shed or closed barn for dairy cows?" has been a much mooted question among the dairy fraternity for many years, and the data offered by the Federal department is illuminative in clearing up the problems. From present knowledge, the open shed is not thought to be adapted to regions of extreme cold, deep snows, or high wind.

Considering all operations other than milking and feeding, slightly more labor was required to care for cows under the open-shed system of management, while there was a tendency for "boss" cows to deprive the weaker animals of feed, and the normal advantages of the shed, which resulted in decreased production on the part of the more timid cows. The manure was apparently well preserved until it could be hauled to the land under the open-shed system, and it was handled more economically than in the closed barn. Furthermore, cornstalks in the manure were sufficiently decomposed to be handled successfully with the manure spreader.

More Bedding In Open Shed.

Under the open-shed system, 68 per cent more bedding was required for each cow, but the cows were cleaner and more comfortable. There was little difference in the time required to bed the animals under the two systems, but the rapid rotting of the cornstalks or other coarse material under the open-shed method makes their use for litter in the open shed practical. Despite other results to the contrary, the results of this experiment showed that there was little if any difference in the frequency of injuries to cows under either open-shed or closed-barn conditions.

In general, little difference could be noted in the contentment of the cows under open-shed or closed-barn conditions. Some of the animals appeared to be more contented in barn stalls; others more at ease in the open shed, while still others apparently had no preference. However, under open-shed conditions the cows had more freedom, as they could lie down and get up with ease and could select a clean place on which to lie whenever they chose. Furthermore, they had access to an abundant supply of fresh air. In many poorly ventilated dairy barns the air supply doubtless would be an important factor in making the open shed more desirable as a source of complete cow comfort.

Data collected by the Department of Agriculture shows that in the instance of 21 cows which were kept under the two systems, 15 animals produced more milk and butter fat when kept in the open shed, while 6 cows showed a higher production when maintained in the closed barn. The total production while in the open shed was 34,630.9 pounds of milk containing 1,535.15 pounds of butter fat, and that in the closed barn was 31,898.7 pounds of milk containing 1,437.41 pounds of butter fat. Accordingly, under the open-shed system, there was a total increase for the period considered, about 80 days, of 2,732.2 pounds of milk and 97.74 pounds of butter fat, or an average for each cow of 130.1 pounds of milk and 4.65 pounds of butter fat. The total number of months compared under each system was 57, and the average time was about 80 days. Calculations from these figures indicate that there was an average monthly increase of 48 pounds of milk and 1.7 pounds of butter fat for each cow while stabled in the open shed.

Barns Require More Labor.

It is largely a matter of personal preference for the farmer to determine under which system, open shed or closed dairy barn, it is most profitable for him to maintain his dairy cows, the specialists conclude. Previously it has been the almost universal practice of dairymen to keep their cows in closed barns, although in recent years the open shed has gained considerable popularity. An investigation conducted among Illinois dairymen emphasized the labor-saving feature of the open shed as its special point of commendation. The Maryland Agricultural Experiment Station reports from similar investigations that the open shed is desirable because it is cheap, it involves less labor, it favors the better conservation of the manure, it keeps the cows cleaner, it provides a better supply of fresh air and light, while it does not result in the animals horning or butting one another so as to cause serious injuries.

The Pennsylvania Agricultural Experiment Station verifies the above, and reports that cows kept in open sheds have keener appetites, and consume more roughage than those kept in stables, although the milk yield of the out-of-door animals decreased more rapidly each winter than that of the cows stabled inside. More bedding was required outside, but less labor was necessary to keep the cows clean. Sudden changes in the temperature caused a larger decrease in milk yield in the case of the outside group.

Further information along the line of the investigations may be had from Bulletin 736, "The Open Shed Compared with the Closed Barn for Dairy Cows," which is now available for general distribution.

Gives Directions for Combating Dangerous Disease of Live Stock

Hemorrhagic septicemia is the name of an infectious disease, attended with a very high mortality, which attacks various species of animals, especially cattle, sheep, and swine. The losses are greatest among young animals, especially those that are thin in flesh and poorly nourished. The disease is a septicemia or poisoning of the blood, wherefore it often runs a short course and the animal dies quickly.

In cattle the disease is sometimes termed stockyards fever. In hogs it is known as swine plague, and the acute form usually is fatal a few hours after the appearance of the first symptoms.

In sheep the disease frequently manifests itself in the acute form, with marked depression, high temperature, labored breathing, muscular trembling, and colicky pains. Fowl cholera represents the avian or bird form of hemorrhagic septicemia, pigeons and geese being quite as susceptible as other species of poultry.

No form of treatment has time to become effective for any animals that may be affected. The apparently healthy animals should be separated from the diseased and placed in clean, uninfected quarters, where they should have the best of feed and water. Bacterins (bacterial vaccines), which may be purchased from most American drug stores, have proved to be effective in many instances in checking the spread of an outbreak and in protecting the unaffected portion of the herd or flock.

The United States Department of Agriculture recently has issued Farmers' Bulletin 1018, which describes this disease and how to deal with it.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Department Men to be Judges.

F. R. Marshall, Acting Chief of the Animal Husbandry Division, United States Department of Agriculture, and E. Z. Russell, in charge of swine investigations, are to act as judges at the International Live-Stock Show to be held at Chicago, November 30 to December 7. Mr. Marshall is to be one of the judges in the student judging contest, and Mr. Russell alternate judge of Duroc-Jersey swine. Extension field men of the department are organizing and will conduct parties of interested stockmen to the International. Owing to a scarcity of workers the Bureau of Animal Industry will not have educational exhibits at the International this year.

Make Sorghum Sirup to Replace Sugar.

A scheme to utilize a part of the sorghum crop for making a sugar substitute for human food is being carried out in Douglas County, Nebr. In one community, through the efforts of the local county agent, six farmers cooperated in purchasing a small sorghum mill, and secured the services of an experienced sorghum-sirup maker. Although the sirup made at this mill is being sold for $1.25 to $1.50 a gallon, present indications are that the demand can not be met. Five sorghum mills are now in operation in the county. Recently a meeting of interested men in Red Willow County was called with the help of the local county agent to organize a stock company to handle the sorghum cane grown in that district.

Preventing Damage to Eggs in Transit.

The Bureau of Chemistry, through the Food Research Laboratory, has been assisting in reducing the damage to eggs in transit by giving practical demonstrations at shipping points in loading cars of eggs or mixed eggs and dressed poultry. Much of the damage is directly due to faulty methods of packing eggs in cases and stowing the cases in the car. Four meetings held recently in Iowa were attended by over 100 practical shippers who send cars weekly, at least, to eastern markets and who expressed great interest in the methods which the department has worked out for the conservation of this valuable foodstuff. They and many others have found the department's folder, "How to Load Cars of Eggs," of assistance. Copies of this folder can be had by writing to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

Discovery Saves Live Stock.

Losses of hundreds of sheep and cattle by stock raisers in San Juan County, N. Mex., were explained when the county agent discovered the whirled milk weed and its poisonous properties. The agent pointed out the plant to farmers and stockmen, several meetings were held to plan how to meet the danger, and committees were appointed to inspect every part of La Plata district, which includes 20,000 acres. By helping the stockmen to locate and avoid the weed, the agent hopes that serious loss will be avoided.

Farm Bureau Constructs Road.

Two communities in Juab County, Utah, have united through the county farm bureau in constructing a road up Pigeon Creek Canyon for the purpose of obtaining timber. Both communities will profit, since both need timber which, until now, has been almost inaccessible. A good road has been long needed, but a strong farm bureau organization was required to put it through. The estimated cost in money and labor was $2,000.

Agents' Efforts Save Garden Surplus.

An example of the success brought about by cooperation is shown in a report received by the United States Department of Agriculture from Gila County, Ariz., where the local home-demonstration agent and county agricultural agent united their efforts in developing methods for conserving $81,200 worth of surplus products grown on more than 100 acres of irrigated land divided into one-eighth acre gardens. A cooperative marketing store was established near the gardens on the edge of town on the main-traveled road. A community canning kitchen was also operated under the supervision of the home-demonstration agent, no charge being made to the cooperating gardeners who wished to make use of it. This plan also presented an opportunity for teaching the most approved and economical methods of canning and drying.

California Answers Call for More Sheep.

To meet the call for more sheep to supply wool and mutton to our fighting forces and civilians the farm bureaus of California have undertaken a campaign to boost the sheep industry in that State and have already succeeded in placing 4,000 sheep on the farms of the State. Some of the points that are being used are being used in the campaign are: The United States Department of Agriculture states that 20 sheep are required to clothe a soldier. The United States has about 50,000,000 sheep. The wool of these will be sufficient to supply uniforms for an army of only 2½ million men.

Urges Fish Meal for Hogs.

To stimulate greater interest in the production of fish meal, which is a good substitute for tankage in the feeding of hogs, E. Z. Russell, in charge of swine investigations for the United States Department of Agriculture, recently visited a number of fisheries along the Gulf coast as well as a number of marketing centers in the South. Tests conducted by the department show that fish meal is equal in feeding value to tankage. It contains about 57 per cent protein. It is made by drying inedible fish and grinding fine. This meal is being used at the Government farm at Beltsville, Md., to replace tankage. The menhaden fisheries on the Atlantic coast can produce annually 10,000 tons of fish meal. Fisheries along the Gulf States and Mississippi River have been wasting or manufacturing as fertilizer large quantities of inedible fish. Mr. Russell's visit to the Gulf States was to investigate the feasibility and to urge the fisheries to manufacture these inedible fish into fish meal for swine feeding.

Cooperative Marketing Saves Money.

Approximately $2,154, or an average of 11.3 cents a pound on a carload of wool, was saved by the farmers of Wayne

County, N. Y., through a cooperative arrangement started by the Wayne County Farm Bureau. When the cooperative enterprise was undertaken last spring the farmers were paid 67½ cents a pound. An addition dividend of $1,528.01 has just been received from the buyers, which brings the average price of the wool a pound up to 73.8 cents. When the interest is received the farmers will have been paid 75.3 cents a pound. The farmers of the county seem to think the farm bureau is responsible for a very successful undertaking.

Wheat Seed Saved in Utah.

Community cooperation, initiated by the county agent in Iron County, Utah, saved 460 acres of wheat through irrigation. A large acreage had been sown on high lands, dependent entirely upon flood waters for irrigation. The high waters did not come. The county agent called a mass meeting of all the farmers of the community and explained the situation. In a second meeting the owners of the primary waters agreed to release them to irrigate the high land. The water was thrown out of the usual channel for four days and 460 acres were thoroughly watered.

New York Sheep Clubs Federate.

A federation of New York State sheep growers' associations to cooperate with the county farm bureaus and the State federation of farm bureaus in handling the State wool clip was the result of a recent meeting of members of 19 farm bureaus at Syracuse. The commandeering of the Nation's wool clip last spring brought forcibly home to the eastern sheepmen the imminent necessity of unity among wool producers. To meet the situation, in June farm bureaus lent every assistance to the creation of wool-pooling associations. Nineteen such clubs marketed nearly half a million pounds of wool at full Government prices. Foreseeing the advantages, both for the Government and themselves that would arise from even greater unity, the New York federation of farm bureaus urged the formation of the present State-wide association.

Unite in Thrashing Grains.

The farm bureau in Columbia County, Conn., discovered through its agricultural survey last March that the spring planting of small grains would be greater than usual, but it was found also that the town of Columbia owned no thrashing machine. At a meeting of farmers called by the county agent a committee was appointed to induce, if possible, a man to buy a thrashing machine and do the work. A man was found. He bought a new machine and declared himself ready to begin. The farmers agreed to let him thrash all their grain at 7 cents a bushel, the farmers furnishing power. The machine followed an itinerary mapped out by the farmers' committee, instead of visiting farms at random, as has been the custom in that State. Grain was thrashed much more quickly and at a cost much less than heretofore. This plan is thought to be a good example of efficient cooperation.

Help in Making Loans.

Kansas county agents and farm bureaus were praised by L. M. Estabrook, assistant to the Secretary of Agriculture, in a letter to W. M. Jardine, president of the Kansas State Agricultural College, for their help in placing among drought-stricken farmers approximately 3,200 seed loans for $860,000. Without their effective cooperation, the letter states, the plan of making seed-corn loans would have proved impracticable. Members of county farm bureaus and county councils of defense who served on inspection committees were described as "worthy of the highest praise."

How Ohio Got Seed Corn.

The State-wide shortage of good seed corn in Ohio this season was met by the farm bureaus and county agents through the purchase and distribution through the State of 80,000 bushels from Pennsylvania and Delaware. The agricultural-extension organization brought in 67 carloads, and the supply was distributed by county agents in the principal corn sections. In addition to this emergency supply, 4½ carloads were reassigned from the Federal reserve supply at Toledo, and about 15,000 bushels of 1917 seed corn were redistributed. Sixty-five counties made use of the reserve supply at Toledo upon orders from the county emergency agents. More than 10,000 bushels of this corn were distributed among farmers in lots varying from 2 bushels to 1,000 bushels.

COOKING EASY BY FIRELESS COOKER.

A fireless cooker is a device for keeping food so hot after it has been taken from the stove that the process of cooking will be continued and completed. It makes cooking easier and cheaper, and the kitchen cooler, because the fire in the range can be allowed to go out and the cooker needs no watching.

Show Way to Cheaper Pork.

Pennsylvania farm bureaus, working with a number of hog raisers, have used feeding experiments conducted by the Pennsylvania State College to demonstrate that at least one-half of the grain feed bill in raising hogs can be saved by providing green feed throughout the growing season.

CONSUMPTION OF WOOL INCREASED

An increase in consumption of approximately 1,700,000 pounds of wool, grease equivalent, is shown for the month of October, 1918, over consumption during September; the October utilization being 60,000,000 pounds, grease equivalent, as against 58,300,000 pounds used during September. This report is made by the Bureau of Markets, United States Department of Agriculture.

Stocks of wool consumed during October, in pounds, by classes, as given by the bureau, were: Grease, 36,165,727; scoured, 10,817,372; pulled, 1,709,410.

The report shows Massachusetts as being the largest consumer, followed in order by Pennsylvania, New Jersey, Rhode Island, New York, New Hampshire, Connecticut, Ohio, and Maine.

FARMERS AND DEALERS COMMEND U. S. LIVE-STOCK MARKET REPORTS

Commendation has been voiced by live-stock farmers and the trade concerning the work of the United States Bureau of Markets in issuing all telegraphic information of a public or commercial character relative to the Chicago live-stock market. Previous to the last few months such reports were sent out promiscuously by private individuals who, in some cases, were accused of manipulating the reports in favor of one interest or another. At least, this sentiment pervaded the trade to the extent that the live-stock industry was injured by the mere existence of such opinion.

It was on this account that Uncle Sam was requested to collect facts and figures daily about the market conditions and receipts and to disseminate this authentic information as widely as possible by telegraph. The daily market reports include an estimate of the daily receipts of each class of live stock, this being one of the important features of the service, as trading at Chicago is based to a large degree

on the Chicago "run." Furthermore, the trading on the outside markets is also determined more or less by the vicissitudes of the Chicago trade. Hence it can be seen readily that any serious discrepancy in the estimate of a certain day compared with the actual receipts, whether intentional or accidental, might influence the entire day's marketing and trading at leading live-stock centers.

Under the system now used in Chicago for obtaining figures upon which to base an accurate estimate, the service is showing marked improvement over the previous efforts of private individuals. The Bureau of Markets bases its estimate on cars reported in and due to arrive by every railroad each day and the result of this plan has been so successful that the shippers and farmers in all sections place confidence in the accuracy and reliability of the Government reports. Illustrative of the accuracy of the Government reports, many large firms at the Chicago stockyards, which formerly employed special men to collect this information, are now using exclusively the official estimates of the Bureau of Markets. It is anticipated that the Federal figures soon will be the only ones credited at the "yards."

GIVE GAME BETTER PROTECTION.

Fewer game laws were enacted in the United States in 1918 than in any year since 1900—about 50 laws having been passed. Eleven States and all the Provinces of Canada held regular legislative sessions. In some States unsuccessful efforts were made to repeal or modify existing protective laws for the duration of the war, and while the laws were slightly relaxed in a few instances, the seasons as a rule were left unchanged or were shortened to give better protection to game that has become greatly reduced in abundance. The United States Food Administration, after carefully considering recommendations received by it on this subject, reached the conclusion that the maximum supply of food can best be obtained by constantly increasing the breeding reserve of game under present laws and even more progressive laws directed toward that end.

The Mediterranean or egg breeds are: Leghorn, Minorca, Anona, Spanish, and Blue Andalusian.

The American or general purpose breeds are: Plymouth Rock, Wyandotte, Rhode Island Red, Java, Dominique, and Buckeye.

The Asiatic breeds are: Brahma, Cochin, and Langshan.

The English breeds are: Sussex, Cornish, Dorking, Orpington, and Redcap. For general farm use the American breeds are probably the best.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, G. I. CHRISTIE.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, WILLIAM WALLACE MEIN.
Mr. Mein is the immediate representative of the Secretary of Agriculture in the discharge of the duties imposed upon him by the President's proclamation of February 25, 1918, with reference to licensing the importation, manufacture, storage, and distribution of fertilizers and fertilizer materials.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, E. H. THOMSON, *Acting Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, LOGAN WALLER PAGE, *Director.*
Studies and supplies information regarding road making, road management; road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Brand, as chief of the Bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licensees operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, E. B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — DECEMBER 11, 1918 — No. 19

Secretary Tells 1918 Advances By America's Army of the Soil

Describes in Annual Report How Farmers Have Responded to Food Needs of War Period

Yields Near Record, and Value Much More Than in Previous Years—Need for Personal Credits, Land Settlement, and Stock Yards Control Discussed

How American farmers responded to the food needs of the United States and the countries with which it was associated in the war is described in detail in the annual report of the Secretary of Agriculture, David F. Houston, made public December 7.

For wheat and other leading cereals and for potatoes, tobacco, and cotton farmers in 1918 planted 289,000,000 acres, an increase over the preceding record year of 5,600,000. It is especially noteworthy, the Secretary points out, that, while the acreage planted in wheat in 1917 was slightly less than that for the record year of 1915, it exceeded the five-year average (1910–1914) by 7,000,000; that the acreage planted in 1918 exceeded the previous record by 3,500,000; and that the indications are that the acreage planted during the current fall season will considerably exceed that of any preceding fall planting.

Food Supply Grows.

Notwithstanding adverse climatic conditions in 1917, especially for wheat, and in 1918 especially for corn, the Secretary reports that only 1915 has exceeded either 1917 or 1918 in the aggregate yield of wheat and other leading cereals.

"The estimated total for 1917," he explains, "was 5,796,000,000 bushels, and for 1918, 5,638,000,000 bushels, a decrease of approximately 160,000,000 bushels. But the conclusion would be unwarranted that the available supplies for human food or the aggregate nutritive value will be less in 1918 than in 1917. Fortunately the wheat production for the current year—918,920,000 bushels—is greatly in excess of that for each of the preceding two years, 650,828,000 in 1917 and 636,318,000 in 1916, and is next to the record wheat crop of the Nation. The estimated corn crop, 2,749,000,000 bushels, exceeds the five-year prewar average by 17,000,000 bushels, is 3.4 per cent above the average in quality, and greatly superior to that of 1917."

Turning to live stock, the Secretary notes that the number of pounds of beef for

(*Continued on page 13.*)

THE AMERICAN FARMERS' WAR RECORD.

Crops.	Acreage.		Production.	
	Acres planted, 1918.	Per cent of 1914.	Tons of 2,000 pounds, 1918.	Per cent of 1914.
Corn	113,835,000	110.0	76,977,544	102.9
Winter wheat	42,170,000	113.6	16,671,750	81.1
Spring wheat	22,489,000	178.3	10,895,850	176.3
Oats	44,475,000	115.7	24,564,752	134.6
Barley	9,108,000	120.4	5,676,120	121.3
Rye	6,119,000	220.7	2,147,236	179.3
Buckwheat	1,045,000	131.9	440,880	108.8
Rice	1,120,000	161.4	943,155	177.3
White potatoes	4,113,000	110.8	11,703,030	95.2
Sweet potatoes	959,000	159.0	2,423,135	155.7
Hay, tame and wild	69,249,000	105.1	86,254,000	97.3
Cotton	37,073,000	100.7	2,824,502	73.2
Tobacco	1,452,900	118.7	633,343	122.4
Sugar beets	689,700	134.0	6,549,000	117.3
Flaxseed	1,967,000	119.6	410,088	106.5
Sorghum sirup	352,000	234.7	120,000	226.4
Total	356,216,600	111.7	249,234,385	104.9

SEES FARMERS' WORK IN WAR IN RANK OF GREATEST DEEDS

Crop Estimates Chief Tells What Food Crops of 1918 Mean

Results Attained Despite Scarcity of Men and Materials; Farmers and Families Heard and Answered Call of World

The farmers' war record is one to which the United States can point with pride. With greatly reduced man power, scarcity and high cost of fertilizer and new equipment, the farmers of this country planted 37,278,000 acres and harvested 9,658,000 tons more of 15 staple crops in 1918 than in 1914. This represents an increase of about 12 per cent in acreage and 5 per cent in production. These increases would have been still more striking but for the fact that both the acreage and production of wheat and cotton were larger in 1914 than ever before, and the yield of those crops was greatly reduced by drought in 1918.

The increase of 9,658,000 tons of staple crops in 1918 more than was produced in 1914 would fill 321,933 standard cars of 30 tons each, which would make a solid train 3,658 miles in length, or more than 500 miles beyond the distance from New York to San Francisco. The increase of 37,278,000 acres is equivalent to the entire cultivated area of Missouri, Texas, and California, as shown by the census of 1909; it is more than the combined cultivated acreage in 1909 of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Virginia,

We should especially strengthen the local farm bureaus and other organizations which support so effectively the extension forces and assist them in their activities.—Secretary Houston.

and North Carolina. The total population in these States in 1909 was over 33,000,000, or more than one-third of the total population of the United States.

Compared to Foreign Lands.

These extra 37,000,000 acres cultivated by American farmers in 1918 is more than twice the cultivated area of England, Scotland, Ireland, and Wales; more than the cultivated area of Hungary; 50 per cent more than the cultivated area of Austria; about two and one-half times the cultivated area of Roumania; nearly as large as the cultivated area of Spain; larger than the cultivated area of Italy; about two-thirds of the cultivated area of France; more than one-half of the cultivated area of Germany; and nearly equal to the combined cultivated area of Belgium, Bulgaria, Denmark, Finland, Luxembourg, Holland, Norway, Portugal, Serbia, Sweden, and Switzerland.

When it is remembered that the immigration of foreign labor practically ceased at the breaking out of the European war, and that consequently all manufacturing industries engaged in work connected with the war had to draw heavily upon the supply of farm labor in order to speed up production, and the further fact that many of the best young farmers were either drafted or volunteered for military service, it will be realized how magnificently the farmers of the United States responded to the call of the President and how well they lived up to the slogan, "Food will win the war."

What It Means.

It should also be borne in mind that the cultivation of such an enormous area over and above the normal acreage in crops in prewar times and the harvesting of such a tremendous increase in the production of food and raw materials was accomplished not by employing additional help, as was done in other industries, because there were fewer men available than at any time during the past 10 years, but by better methods of farming and by greater personal exertion of farmers and their families, working more days and longer hours per day throughout the entire crop season. Such an achievement will compare with anything accomplished during the war by the best engineers, with unlimited equipment, raw materials, and skilled workers in ship building, construction of aeroplanes or Liberty motors, or the manufacture of munitions and other military supplies and equipment.

LEON M. ESTABROOK,
Chief Bureau of Crop Estimates.

Fresh air is one of the prime essentials in poultry houses.

MUST RESUME HIGHWAY WORK WITHOUT DELAY—SECRETARY

Cooperative Road Construction Should Be Pushed and Extended

Worthy Projects Would Furnish Employment During Period of Readjustment Machinery for Program Is Ready Now

Cooperative highway construction under the Federal aid road act must be resumed as quickly as possible in full measure, the Secretary of Agriculture, D. F. Houston, stated at a conference of editors of agricultural journals held recently in Washington.

From unexpended balances of Federal appropriations for the last few years, from State funds beyond what was necessary to meet the Federal allotments, and from amounts available during the current fiscal year, approximately $75,000,000 will be available for expenditure during the calendar year. Next year, if all the balances should be expended during this year, and we should have to rely solely on the funds accruing next year, there will be about $20,000,000 from Federal appropriations, and probably more than this amount from State sources, according to the Secretary's statement. The States, in addition, will expend sums in excess of what they have assigned, or will assign, for Federal aid road projects.

Would Furnish Employment.

"It seems to me," said the Secretary, "that we should take a further step—take this step not only because of the importance of good roads, but also because of the desirability of furnishing worthy projects on which unemployed labor during the period of readjustment may be engaged. There will be many things suggested for which Federal and State funds will be sought. Some of these will be unworthy. Clearly such public works as roads are worthy, and it would be in the public interest to make available larger appropriations from the Federal Treasury to be used separately or in conjunction with State and local support.

Machinery Now Exists.

"There need be no delay in the execution of such a program. The Nation has already provided the machinery in the Department of Agriculture and in the State highway commissions. The Federal-aid road act was fruitful of good legislation, and each State in the Union now has a central highway authority with power and funds to meet the terms of the Federal act. The two agencies, in conjunction, have been engaged in devising well-considered road systems and in making surveys, plans, and specifications. The task will be one of selection, and those roads should be designated for improvement which are of the greatest economic importance, with due regard to such military and other needs as are proper for consideration. There is no necessity for any departure from this scheme. The suggestions made have been canvassed with the President, the Secretary of War, and the Postmaster General, and they are in accord with the view that additional funds should be made available to this department and that they should be expended through existing machinery."

Polish Women Learn Conservation of Food; Americanization Helped

In the Connecticut Valley, as in many other parts of the country, difficulty was experienced in getting the people as a whole to conserve the needed foods because a large proportion did not speak English and consequently could not be reached by the talks of home demonstration agents nor by information printed in English.

Many of the people in that part of New England who do not speak English are of Polish origin. When it was evident that the food regulations were not being observed because of ignorance of what they were, a scheme was devised by the home demonstration force of the Department of Agriculture and the State college at Amherst.

In May, two young Polish women, who spoke both Polish and English, were given two weeks' instruction in food conservation at the college with a view of preparing them to give demonstrations on the use of wheat substitutes. These women translated and then typed the recipes into Polish and made stencils for mimeographing. Later they were given special training in food preservation, which work continued all summer.

Much of the success of training these women, as well as of the work as it advanced, was due to the fact that the direct supervision was under one of the members of the rural sociology department of the college who is a Pole. He knew the communities and their needs, and was able to advise the young women of the kind of help needed.

Demonstrations all summer were given before large groups of Polish women. In one town in Berkshire County, which seemingly had been indifferent to food

conservation and was most difficult to reach, 250 Polish women came to the Polish demonstration. The relation of food conservation to the winning of the war and to the food situation in Poland was explained to them and a demonstration given. As a result intense interest was awakened and more demonstrations were asked for.

In Hampshire County a Polish girls' club of 17 members met regularly for canning instruction, had an exhibit at the State fair, and plans to have a canning club next year which will compete with other clubs in the State.

The Polish demonstrators found it advisable to give two demonstrations in the same town several days apart. The first one would attract the interested wide-awake Polish women and the announcement of a second demonstration always resulted in bringing out a great number of people. In many of the towns the attendance was so large that it was felt better work could be done by dividing the women into groups. The same demonstration was given each group.

A translation of the canning circular was made by the two Polish leaders and great numbers of these circulars were distributed.

The effect of this work in the Connecticut Valley has been to save the needed food stuffs, but it also has been a big step toward the Americanization of the people who do not speak English.

STATISTICAL RECORDS IMPORTANT.

Statistical records giving acreage and production of crops have been compiled by the Bureau of Crop Estimates, United States Department of Agriculture, for 27 foreign countries.

In addition to this, the foreign crop work has included a large number of special compilations and correspondence. Within the next year the compilation of agricultural statistics for the remaining countries probably will be finished. When this is accomplished the Bureau of Crop Estimates will have one of the most complete records of estimates and statistics relating to world crops and live stock in existence, expressed in terms of American units and in such convenient form as immediately to be available for reference.

During the year monthly reports on crops and on exports and imports of cereals and cotton, also various data on other agricultural subjects, were sent from this bureau by mail, cable, and radiogram to the International Institute of Agriculture, Rome, Italy.

TELLS HELP BY DEPARTMENT IN NATION'S WORK OF WAR

Secretary Shows How Other Federal Agencies Were Given Aid

Meat Supply for Army and Navy Guarded, Wood for Airplanes, Other Materials, Tested; Other Examples of Cooperation Cited

The Department of Agriculture, according to the Annual Report of Secretary Houston, has maintained intimate touch with the War and Navy Departments, the War Industries, War Trade and Shipping Boards, and the Fuel and Food Administrations.

Through the Bureau of Animal Industry it not only continued to safeguard the meat supply for the civilian population but it also inspected the meats used at the various cantonments, training camps, forts, posts, and naval stations, and has aided in the organization of the Veterinary Corps.

Wood for Airplanes.

Through the Forest Service it rendered valuable assistance to practically all branches of the Government having to do with the purchase or use of forest products, and to many industries which supply war material to the Government, made a thorough study of the lumber situation, aided in many directions the Bureau of Aircraft Production and the Navy Department in the execution of their airplane programs, conducted cooperative tests on a large scale at the Forest Products Laboratory, and collaborated in the organization of the forestry regiments.

Its Bureau of Markets handled the distribution of nitrate of soda to farmers for cash at cost, cooperated with the War Industries Board in broadening the channels of distribution and stimulating the use of stocks of low-grade cotton, and worked with the Food Administration in the handling of grains and in other of its activities.

Materials Tested.

Its Bureau of Chemistry assisted other departments in preparing specifications for articles needed by them, aided the War Department in the organization of its chemical research work and in making tests of fabrics and supplies, worked out formulas for waterproofing leather, and maintained intimate touch with the related services of the Food Administration.

The department collaborated with the War Department in its handling of the draft, with special reference to its problem of leaving on the farms the indispensable skilled agricultural laborers.

In like manner, through the States Relations Service and the Bureaus of Soils, Roads, Biology, and Entomology, the Department's services have been freely extended to the other branches of the Government.

NEW PLANT QUARANTINE TO GUARD AGAINST INSECT PESTS AND DISEASES

A quarantine, with regulations governing the importations of nursery stock and other plants and seeds into the United States as a protection against the introduction of insect pests and plant diseases, has been signed by the Secretary of Agriculture, D. F. Houston. The order, known as Quarantine No. 37, will become effective on and after June 1, 1919, and the regulations under it will supersede those now in force governing the importation of such stock.

Under the terms of this quarantine and regulations, fruits, vegetables, cereals, and other plant products imported for medicinal, food, or manufacturing purposes, and field, vegetable, and flower seeds may be imported without permit or other restrictions. Other classes of plants for propagation permitted entry, including certain bulbs, rose stocks, fruit stocks, cuttings, and scions, and seeds of fruit, forest, and other ornamental and shade trees, and all hardy perennial ornamental shrubs, may be imported only in accordance with the permit and other requirements of the regulations. The entry of these classes of plants is represented by experts to be essential to the floriculture and horticulture of this country under existing conditions.

The regulations permitting the entry of the restricted classes of plants, as noted, are similar to those hitherto in force and take into account the classification of countries into those maintaining inspection and certification of nursery stock in accordance with the requirements of the plant quarantine act and countries which have not made provision for such compliance with the act.

Copies of the quarantine and regulations soon will be available for distribution.

Horses should not be confined to the barn during the winter on a liberal supply of grain. It is far better to "rough" them through the cold months. They should be given the run of the yard or lot during the day. This should be provided with a protected shed, dry and well provided with bedding.

Live-Stock Industry Booming in South; Reports of Specialists Tell of Advances

The live-stock industry in the Southern States is progressing at a rapid rate. Some of the things beef-cattle extension specialists of the United States Department of Agriculture and the State agricultural colleges are doing to encourage a combination of live-stock production with cotton growing are described in recent reports from the field. As a result of their activities thousands of pure-bred cattle are being shipped into every Southern State and carloads of fat stock are being sent to live-stock markets from farms where cotton formerly was grown exclusively.

During a recent month the specialists visited 154 farms in 113 counties in the States of Arkansas, Florida, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee, and traveled 32,587 miles to give specific instructions to farmers and to confer with other extension workers on beef production. They attended 10 meetings, held 12 demonstrations, and through their efforts a total of 129 pure-bred bulls, 324 pure-bred cows, and 1,805 grade cattle were placed on farms in the different States. During the month also a general conference was held at Memphis, Tenn., which was attended by State and Federal representatives of the Department of Agriculture, directors of State experiment stations and extension workers, State agents, veterinarians, and others interested in promoting more and better live stock in the South.

Assist in Live-Stock Shows.

Among the many duties of the beef-cattle specialists is to assist with the live-stock work in connection with live-stock shows and county and State fairs. They assist breeders in making selections of feeding animals for shows, in arranging judging contests and demonstrations, and in securing better classifications and premiums for worthy exhibits, all of which has been the means of arousing interest and making live-stock exhibits a more attractive feature at the fairs.

The beef-cattle specialists from Arkansas made an exhibit at the Tri-State fair held in Memphis, in which was shown the best methods of feeding and raising live stock. Improved cattle-feeding sheds, feeding bunks, and silos were shown, together with a number of instructive placards, giving such information as suitable fattening rations for 1,000-pound steers, and wintering rations for the breeding herd. Farmers were urged to cull their breeding herds at this time of the year and dispose of all inferior animals. Arkansas farmers, particularly in the rice-growing sections where there is abundant pasture and plenty of straw, have been good buyers of cattle from the drought area in the Southwest.

Plenty of Feed Available.

There are extensive areas in Florida, not now being used, which would graze a large number of cattle, the extension specialists say, though the farmers are fast awakening to the possibilities of the live-stock industry. It is reported that the holdings of one company alone would carry 20,000 head if completely utilized.

Reports from Georgia say that pastures are good and feed is plentiful, particularly velvet beans, and that undoubtedly there will be a large number of cattle fed in that State this year. The specialists are continually being called upon to locate feeder cattle for farmers in both Georgia and Florida, and several large shipments have already been made from the Southwest and other sections. It is estimated that 100 carloads will be brought into Georgia alone from Texas this fall.

Feeding demonstrations are being arranged on 12 to 15 farms in different sections of Mississippi, and plans have been made to conduct them through the cooperation of county and district agents. Special attention will be given to demonstrations in pasturing velvet beans, and velvet beans and corn.

Pure-Bred Stock in Demand.

Orders have been placed for more than 50 carloads of breeding stock to be shipped from the Southwest to North Carolina, and the total number purchased will undoubtedly far exceed this number. There is also much interest in the purchasing of pure-bred bulls, and extension specialists are planning to hold several consignment sales in the State in an effort to meet the demand. As a means of further stimulating the beef-cattle industry a campaign is being conducted for the building of silos and improving the pastures in the State.

In South Carolina also the demand for pure-bred stock as well as steers for fall and winter feeding far exceeds the available supply. In a number of localities committees of representative farmers, accompanied by specialists, have gone into other States to purchase breeding stock. At a recent disbursement sale of 24 head of pure-bred cattle 21 of the animals remained in the State, the farmers being anxious to retain them to build up their herds.

Arrangements were made by Tennessee stockmen with the Union Stock Yards Co. in Nashville for holding the annual sale of the Middle Tennessee Breeders' Association at the yards. The company provided stall space for the cattle, a sale ring, and in other ways helped make the sale a success. The farmers of the State are much interested in pasture improvement and the keeping of live stock as a means of meeting the labor shortage.

OUTLINES STEPS DEPARTMENT TOOK TO EXTEND USE OF LOW-GRADE COTTON

Steps taken by the Department of Agriculture to secure the proper utilization of low-grade cotton, particularly through a modification of Government contracts, are told of in the annual report of the Secretary of Agriculture.

"It has been very difficult," says the report, "to obtain correct commercial differences for cotton during the past season owing to the great demand for the high grades and the falling off of that for the low grades. To add to the difficulty, the latter became concentrated at a limited number of designated spot markets. These markets endeavored to submit correct quotations for them, while other markets were at a loss as to how to arrive at correct differences. This caused some markets to quote the very low grades at a much wider discount than others. The apparent result was that the average differences for these grades were comparatively so narrow as to make their delivery on future contracts very profitable. A further result was that the parity between spot cotton and future cotton was greatly disturbed, future contracts depreciating in value on account of the comparatively high prices at which the low-grade product was delivered on future contracts."

The department realized that it was economically unsound for an appreciable portion of the crop practically to become dead stock, and believed it feasible to use low-grade cotton without reducing the serviceability of manufactured fabrics. In addition to the effort for proper utilization, steps were taken, through cooperation with the designated spot markets, to assure accurate quotations.

"It may be desirable," the Secretary says, "to amend the rules for obtaining differences in order to secure more nearly accurate quotations for the grades of which such markets may from time to time become bare. The possibility of formulating a workable plan is being considered."

Pink Bollworm Will Be Exterminated in Texas, Campaign Report Forecasts

Extermination of the pink bollworm, the dangerous enemy of cotton, which invaded Texas cotton fields from Mexican territory in 1916, is forecast by the Federal Horticultural Board, United States Department of Agriculture, in its annual report just issued. Work of extermination, conducted under the provisions of the plant-quarantine act, has been so thorough and effective that not one pink bollworm egg, larva, or moth has been found within either of the quarantined areas or elsewhere in Texas during the season of 1918.

This would seem to indicate, says the report, the efficiency of the clean-up during the year of these districts, and gives ground for expecting the ultimate complete extermination of the pink bollworm in Texas. If this result is achieved it will be, in the opinion of the board, "the largest successful entomological experiment of the kind in history."

How Pest was Fought.

Immediately after the discovery of the presence of this destructive insect a quarantine was established prohibiting the further entry into the United States of cotton or cotton seed from Mexico; a border-control service was organized to prevent the accidental entry of such products by rail; a disinfection service as to cars and freight from Mexico was made effective; and research work in relation to the life history and habits and means of control of the pink bollworm was conducted in cooperation with Mexico near San Pedro, in the Laguna district, Mexico.

Throughout the summer all of the quarantined districts have been under constant inspection, and all volunteer or seeding cotton has been destroyed. Also field surveys are being conducted adjacent to the quarantined districts to determine any possible spread beyond the existing quarantine lines.

The regulation of the entry into the United States of railway cars and other vehicles, freight, express, baggage, and other materials from Mexico, and the inspection, cleaning, and disinfection of such cars and freight, etc., have been continued during the year to prevent the accidental movement of cotton and cotton seed from Mexico into the United States. This inspection service covers the ports of El Paso, Laredo, Del Rio, Eagle Pass, and Brownsville, and now involves the services of 11 inspectors. During the year 25,257 cars have been inspected and passed for entrance into the United States, divided among the border ports as follows: Brownsville, 1,635; Eagle Pass, 3,836; El Paso, 6,787; Laredo, 12,999.

No cars or freight fouled with cotton seed are permitted entry until such seed has been entirely removed. This necessitates, in many cases, the transfer of freight to clean cars on the Mexican side. In addition, as a condition of entry, all cars and freight which come to the border containing such seed are disinfected with hydrocyanic-acid gas.

Building Fumigation Houses.

The system of disinfection of cars and freight with hydrocyanic-acid gas by means of generators placed within the cars has been the best available means, but is unsatisfactory owing to the poor condition of the cars and also to the fact that it gave no security against any insects which might be resting on the exterior of the cars or their motive parts. The erection of fumigation houses was authorized toward the end of the fiscal year and plans were drawn, bids secured, and contracts let for the construction of five fumigation houses at the ports above mentioned. The construction of these houses is now well under way. Their size has been adjusted to the needs of the traffic, and they have the following car capacity at the different ports of entry: Laredo, 15 cars; Eagle Pass, 8 cars; Brownsville, 6 cars; and El Paso, 1 car.

At Del Rio no railroad line crosses the border, and a house is being constructed to take care of traffic in wagons and motor trucks. Each of these houses is provided with a system of generators in which hydrocyanic-acid gas is produced and distributed to the house. The cost of this disinfection will be assumed by the Department of Agriculture and a charge will be made to cover the actual labor, other than supervision, and the chemicals used. The moneys so received, under the law, must be turned into the Treasury of the United States. To provide for the continuation of the pink-bollworm work Congress has appropriated $500,000.

FEDERAL FEED AND FERTILIZER LAWS RECOMMENDED IN SECRETARY'S REPORT

A comprehensive Federal feed law, under which the Government could proceed in a uniform manner and protect consumers against misbranded, adulterated, and worthless feeds entering into interstate commerce, as well as to protect the honest manufacturer and distributor, is recommended in the annual report of the Secretary of Agriculture. It is probable also, says the Secretary, that similar legislation would be feasible and valuable with reference to fertilizers passing into interstate commerce.

The Secretary states that there is much indiscriminate use of commercial fertilizers in this country, and therefore much waste of money. This arises from lack of available satisfactory data. Because of the importance of the matter to the whole Nation, the Secretary suggests that an adequate sum be made available to the Department of Agriculture, in order that it may conduct cooperative experiments with State institutions, and thus secure the requisite information.

Secretary Discusses Progress Toward Better Rural Health

Much remains to be done in rural districts, according to the Annual Report of the Secretary of Agriculture, to control such pests as mosquitoes and the hookworm, to eliminate the sources of typhoid fever, and, even more, to give the country districts the advantages of modern hospitals, nursing, and specialized medical practice.

Noting that many agencies, some of them private enterprises with large funds, are working for improvement, the report says that the Department of Agriculture through its home demonstration service, is giving valuable aid, and the Public Health Service is increasingly extending its functions.

To what extent the further projection of effort is a matter for State or local action remains to be determined, says the Secretary, but it seems clear that there should be no cessation of activities until there has been completed in every rural community of the Union an effective sanitary service, and through the provision of adequate machinery steps taken to control and eliminate the sources of disease, and to provide the necessary modern medical and dental facilities easily accessible to the mass of the people.

LEADERS IN ALL COUNTIES

Every county in Massachusetts now has a leader on full time for the boys' and girls' clubs organized in the State under the direction of the Department of Agriculture and the State agricultural colleges.

LARGER COMMERCIAL STOCKS OF WHEAT SHOWN IN REPORTS

November Survey by Department Discloses 274,925,910 Bushels

Other Cereals Also Show Gains Over Previous Figures, as Do Beans, Rolled Oats, Sugar, and Other Food Products

Commercial stocks of wheat reported in a survey made by the Department of Agriculture as of November 1, 1918, amounted to 274,925,910 bushels, as compared with 195,997,839 bushels reported on hand in a similar survey for October 1. These figures refer to stocks actually reported and do not represent the total commercial stocks of the country, nor do they include stocks on farms. The stocks reported for November were held by 12,538 firms—elevators, warehouses, grain mills, and wholesale dealers—their holdings being more than two and one-half times the stock held by them a year earlier, the actual percentage being 269.4 of the 1917 stock.

Visible Supply Figures Compared.

The commercial visible supply figures, as published by the Chicago Board of Trade for the nearest date (November 2, 1918) show 122,604,000 bushels of wheat as against 14,908,000 a year ago, and the corresponding Bradstreet figures for 1918 show 131,852,000 bushels as against 22,855,000 bushels for 1917. A very great relative increase in the commercial stocks of wheat on November 1, this year, as compared with the same date of last year is shown by these figures, as well as by the results of the more extensive survey.

Other Cereals, Flour and Corn Meal.

The commercial stocks of other cereals reported for November 1, 1918, according to the department statement, were as follows: Corn, 17,123,734 bushels; oats, 79,775,204 bushels; barley, 34,462,597 bushels; rye, 15,123,135 bushels. These stocks represent the following percentages of the corresponding stocks on November 1, 1917: Corn, 272.7 per cent; oats, 108.9 per cent; barley, 129.1 per cent; rye, 122 per cent.

The commercial stocks of flour and corn meal, as reported for the survey, were: Wheat flour, white, 5,384,839 barrels; whole-wheat and graham flour, 148,916 barrels; rye flour, 303,434 barrels; corn flour, 51,756,846 pounds; corn meal, 69,299,044 pounds; buckwheat flour, 5,129,979 pounds; mixed flour, 23,460,225 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 128.1 per cent; whole-wheat and graham flour, 300.4 per cent; rye flour, 176.5 per cent; corn meal, 224.4 per cent; buckwheat flour, 137.1 per cent; mixed flour, 228.4 per cent.

Stocks of Selected Commodities.

Elevators, warehouses, and wholesale dealers reported stocks of beans amounting to 9,219,426 bushels, while wholesale grocers and warehouses reported the following commodities and in the amounts indicated: Rice, 45,936,021 pounds; rolled oats, 70,624,761 pounds; canned salmon, 134,395,221 pounds; canned tomatoes, 171,391,134 pounds; canned corn, 72,135,832 pounds; sugar, 189,011,909 pounds. These stocks represent the following percentages of the corresponding stocks on hand November 1, 1917: Beans, 168.7 per cent; rice, 50.8 per cent; rolled oats, 139.8 per cent; canned salmon, 93 per cent; canned tomatoes, 127.3 per cent; canned corn, 108.3 per cent; sugar, 133.8 per cent.

Stocks of condensed and evaporated milk were reported by condenseries, cold storages, warehouses, and wholesale grocers as follows: Condensed milk, 57,017,988 pounds; evaporated milk, 93,944,475 pounds. The holdings of condensed milk reported for November 1, 1918, represented 115.8 per cent of the stocks held by the same firms a year earlier, while the holdings of evaporated milk represented 72.9 per cent of the November, 1917, stock.

Stocks of Irish potatoes, onions, and cabbage were reported for November 1, 1918, by wholesale dealers, elevators, and warehouses as follows: Potatoes, 375,416,087 pounds; onions, 65,871,564 pounds; cabbage, 27,656,776 pounds. These stocks represent the following percentages of those held by the same firms on November 1, 1917: Potatoes, 114 per cent; onions, 64.1 per cent; cabbage, 97 per cent.

COWS should be kept clean and should be milked in clean surroundings into a small-top or covered pail. All utensils which come into contact with the milk should be thoroughly sterilized with steam for at least five minutes, and milk should be cooled promptly to 50° F. or less and maintained at that temperature. Whenever these conditions are met, little milk will be wasted.

SHOWS GROWTH IN WAR TIME OF EXTENSION SERVICE WORK

Secretary's Annual Report Says Its Effectiveness Has Been Demonstrated

Many Agents Added to Encourage Men, Women, Boys, and Girls in Food Production and Conservation—Their Activities Wide

It has been amply demonstrated, Secretary of Agriculture Houston says in his annual report, that the most effective means of getting information to farmers and their families and of securing application of the best scientific and practical processes is through the direct touch of well-trained men and women.

The war-time growth of the agricultural extension service was made possible by emergency appropriations, and was brought about through active steps by the department in cooperation with the State colleges. In April, 1917, when this Nation entered the war, 2,149 men and women were employed in county, home-demonstration, and boys' and girls' club work, distributed as follows: County agent work, 1,461; home-demonstration work, 545; boys' and girls' club work, 143. In November of this year the number had increased to 5,218, of which 1,513 belong to the regular staff and 3,705 to the emergency force. There were 2,732 in the county-agent service, 1,724 in the home-demonstration work, and 762 in the boys' and girls' club activities. This does not include the large number of specialists assigned by the department and the colleges to aid the extension workers in the field and to supplement their efforts.

"It would be almost easier to tell what these men and women did not do than to indicate the variety and extent of their operations," says the Secretary. "They have not only actively labored to further the plans for increased economical production along all lines and carried to the rural population the latest and best information bearing on agriculture, but also to secure the conservation of foods and feeds on the farm; and, in addition, many of them have aided in the task of promoting the better utilization of food products in the cities. They constitute the only Federal machinery in intimate touch with the millions of people in the farming districts. They have, therefore, been able to render great service to other branches of the Government, such as the Treasury in its liberty-loan campaigns, the Red Cross, the Young Men's Christian Association, and other organizations in their war activities, and the Food Administration in its special tasks."

Farming Results in Brief

The demand for the official inspection of grain under the United States grain standards act is steadily increasing. There are now 330 licensed inspectors and 120 inspection points and within the last fiscal year 438,703 cars of corn and 337,344 cars of wheat were graded under the act.

The extent of citrus canker in Florida, where the citrus industry is of great magnitude, has been greatly reduced, and in Alabama, Mississippi, Louisiana, and Texas it is believed that any further seriously destructive outbreaks of the disease can be prevented. Since the autumn of 1914 the department has cooperated with the Gulf States in a campaign to eradicate the canker disease.

The Texas border quarantine service, which regulates the entry into the United States from Mexico of railway cars and other vehicles, freight, express, baggage, and other materials, and their inspection, cleaning, and disinfection, is being continued to prevent the entry into this country of cotton and other parasites and diseases. During the year 25,257 cars have been inspected and passed for entrance into this country.

The season of 1918 strikingly illustrated the advantages which the national forest ranges offer to the western livestock industry. Throughout the West the ranges outside the forests were generally in bad shape on account of drought conditions. The live-stock business is becoming precarious for owners who are dependent upon the open public range; many are closing out, and the number of range stock is being reduced. On the other hand, the use of the national forest ranges is increasing and their productivity is rising under the system of regulation.

The total area in the Southern States freed from cattle-fever tick quarantine up to December, 1918, is 379,312 square miles, and the work of the past season will result in the addition of 79,217 square miles additional on December 1, making a total of 458,529 square miles freed, or 63 per cent of the area originally quarantined. The remainder of the State of Mississippi was liberated last year, opening a tick-free avenue to the Gulf of Mexico, and the releases of December 1 will liberate the remainder of South Carolina, thus opening free territory to the Atlantic Ocean.

Enlarged forces and more energetic efforts have brought further progress in the eradication of the parasitic diseases known as scabies or scab of sheep and cattle. Diseases now linger in only a few small areas. Greater efforts were put forth in the past year to control a number of other diseases which operate to reduce live-stock production.

The Food Products Inspection Service inaugurated by the Government in the fall of 1917 now has inspectors in 36 of the most important markets in the country. This service has made it possible for shippers to receive certificates from disinterested Federal representatives as to the condition of their fruit and vegetable shipments upon arrival at large central markets.

HELP WILD BIRDS THIS WINTER

Winter is the adverse season for most of our birds. If severe, scarcity of food is sure to occur, and the birds, soon weakened, fall victims to the cold. Birds, in general, are of great value in destroying injurious insects, and their numbers should be kept up to the standard necessary for their most effective work. Help them, therefore, by feeding them in winter, especially in the Northern States, when there is heavy snow. Bulletins containing directions for the winter feeding of birds, and posters calling public attention to the desirability of winter feeding, may be obtained from the Bureau of Biological Survey, United States Department of Agriculture.

FEDERAL MEAT-INSPECTION FIGURES ARE GIVEN

The Federal meat-inspection service covered 884 establishments in 253 cities and towns in the fiscal year 1918. The figures are in the annual report of the Secretary of Agriculture.

There were slaughtered under inspection 10,938,287 cattle, 3,323,079 calves, 8,769,498 sheep, 149,503 goats, and 35,449,247 swine—a total of 58,629,612 animals. Compared with the preceding fiscal year, these figures represent a decline of 5,000,000 in the total number of animals, but an increase of nearly 1,750,000 cattle and more than 600,000 calves. Condemnations amounted to 206,265 animals or carcasses and 528,481 parts of carcasses. The supervision of meats and products prepared and processed covered 7,905,184,924 pounds, and resulted in the condemnation of 17,543,184 pounds. There were certified for export 2,510,446,802 pounds of meat and meat food products.

HOW DEPARTMENT HELPED TO MEET FARM LABOR NEED

Harvesting from Record Acreage Done Without Abnormal Difficulty

Federal Representatives Maintained in States; Work with Other Federal Branches Coordinated; Examples of Help from Cities

Although the largest acreage on record was planted in 1918 by American farmers, the great crops of the year were harvested under difficulties not appreciably greater than those in normal times, says the annual report of the Secretary of Agriculture.

"The Department of Agriculture continued throughout the year to give earnest attention to the securing and mobilization of an adequate supply of farm labor," the report states. "It maintained its representatives, stationed in each State in the spring of 1917, and perfected its own organization, enlisting the more active cooperation of the county agents and other extension workers.

Work Coordinated.

"It more fully coordinated its activities with the Department of Labor, a representative of the Department of Agriculture having been designated a member of the War Labor Policies Board, which was created by the President. It has also aided the War Department in connection with the classification of agricultural registrants. Special efforts were made, beginning early in the year, to impress upon the residents of urban communities the necessity of aiding farmers in the planting and harvesting of their crops.

Help From Cities.

"The response to appeals along this line was generous. In Kansas, for example, where the situation was especially difficult, the reports indicate that more than 45,000 workers were supplied to farmers to assist in the wheat harvest. The potato crop in two counties in Texas was saved through the aid of the business men in the local communities, and in Illinois 35,000 workers were registered for harvest work."

Many other examples could be cited, the Secretary says.

Fall or winter pruning of grape vines may be done at any time during mild weather from November to March, while the vines are in a dormant condition.

Personal-Credit Unions Advocated by Secretary to Aid Small Farmers

A system of personal-credit unions, especially for the benefit of farmers whose financial circumstances and scale of operations make it difficult for them to secure accommodations through ordinary channels, is recommended in the annual report of the Secretary of Agriculture.

"The men I have especially in mind," says the Secretary, "are those whose operations are on a small scale and who are not, in most cases, intimately in touch with banking machinery, who know too little about financial operations, and whose cases usually do not receive the affirmative attention and sympathy of the banker. Such farmers would be much benefited by a membership in cooperative credit associations or unions."

Need Help From Town Men.

"Of course, there are still other farmers whose standards of living and productive ability are low, who usually cultivate the less satisfactory lands, who might not be received for the present into such associations. This class peculiarly excites interest and sympathy, but it is difficult to see how immediately any concrete financial arrangement will reach it. The great things that can be done for this element of our farming population are the things that agricultural agencies are doing for all classes, but must do for it with peculiar zeal. The approach to the solution of its difficulty is an educational one, involving better farming, marketing, schools, health arrangements, and more sympathetic aid from the merchant and the banker. If the business men of the towns and cities primarily dependent on the rural districts realize that the salvation of their communities depends on the development of the back country and will give their organizing ability to the solution of the problem in support of the plans of the organized agricultural agencies responsible for leadership, much headway will be made.

"The foundation for effective work in this direction is the successful promotion of cooperative associations among farmers, not only for better finance, but also for better production, distribution, and higher living conditions. These activities are of primary importance. At the same time, it is recognized that such cooperation can not be forced upon a community, but must be a growth resulting from the volunteer, intelligent effort of the farmers themselves."

Laws Adopted by States.

"The conclusion up to the present," says the Secretary, "seems to be that the field is one primarily for the States to occupy through sound legislation. Under laws adopted in five States 125 personal-credit associations have been organized, but the larger percentage of them have been formed by wage earners in urban centers."

"The attempt to develop strictly rural credit bodies has met with somewhat more success in North Carolina than elsewhere," the report states. "In this State the work of promoting and supervising such organizations was placed in charge of an official in the Division of Markets and Rural Organization of the State College of Agriculture. The law of this State was enacted in 1915, and at present 18 credit unions, all of them rural, are in operation. It is noteworthy that the North Carolina law makes special provision for educational and demonstrational activities."

MORE FOREST PROTECTION IS URGED BY SECRETARY; 1918 TASK DIFFICULT

Provisions for pushing more rapidly the improvement work in the forests of the United States, for a greater number of forest guards, and for earlier organization each fire season of the protective system are advocated by the Secretary of Agriculture in his annual report.

Protection of the forests during the season of 1918 proved an exceptionally difficult task, says the Secretary. An unusual strain was imposed on an organization somewhat depleted in numbers and much weakened by the loss of many of its most experienced men. Added to this was the difficulty of securing good men for temporary appointment as guards during the fire season, and parties of men for fighting large fires. An unusually early and severe dry season caused the outbreak of serious fires before the summer protective organization was fully ready.

Some embarrassment in meeting the situation, the report comments, was caused by the failure of the annual appropriation act to pass Congress until after the fire season was virtually over. Relief was furnished by the President, who placed $1,000,000 at the Secretary's disposal as a loan from the President's emergency fund. It may be necessary, the Secretary says, to seek from Congress again a deficiency appropriation of $750,000.

How Crop Figures Are Gathered By Country-Wide Organization

An outline of the organization developed in the Department of Agriculture through more than half a century of experience in crop estimating, indicating the care and thoroughness with which Government crop reports are prepared, is given in the annual report of the Secretary of Agriculture.

For collecting original data the Bureau of Crop Estimates has two main sources of information—voluntary reporters and salaried field agents. The voluntary force comprises 33,743 township reporters, one for each agricultural township; 2,752 county reporters, who report monthly or oftener on county-wide conditions, basing their estimates on personal observation, inquiry, and written reports of aids, of whom there are about 5,500; 19 special lists of cooperators, aggregating 137,000 names, who report on particular products, such as live stock, cotton, wool, rice, tobacco, potatoes, apples, peanuts, beans, and the like, and 20,160 field aids, including the best informed men in each State, who report directly to the salaried field agents of the bureau. The total voluntary staff, therefore, numbers approximately 200,000, an average of about 66 for each county and 4 for each township. The reporters, as a rule, are farmers. They serve without compensation, and are selected and retained on the lists because of their knowledge of local conditions, their public spirit, and their interest in the work. All except county and field aids report directly to the bureau, and each class of reports is tabulated and averaged separately for each group and State.

Trained Men Gather Statistics.

The bureau has 42 salaried field agents, 1 stationed permanently in each of the principal States, or group of small States, and 11 crop specialists. These employees are in the classified civil service. All have had some practical experience in farming. Most of them are graduates of agricultural colleges, and are trained in statistical methods and crop estimating. They travel approximately three weeks each month, the fourth week being required for tabulating and summarizing the data collected. They send their reports directly to the department in special envelopes or telegraph them in code.

These are carefully safeguarded until the Crop Report is issued.

Additional information is secured from the Weather Bureau, the Bureau of the Census, State tax assessors, thrashers, grain mills and elevators, grain transportation lines, the principal live-stock markets, boards of trade and chambers of commerce, growers' and shippers' associations, and various private crop-estimating agencies. Specific reports from the field service are assembled in Washington, tabulated, averaged, and summarized separately for each source, each crop, and each State. The resulting figures are checked against one another and against similar data for the previous month, for the same month of the previous year, and for the average of the same month for the previous 10 years; and a separate and independent estimate for each crop and State is made by each member of the crop-reporting board, after which the board agrees upon and adopts a single figure for each crop and State.

AVAILABLE COLD STORAGE SPACE REPORTED IN DEPARTMENT SURVEY

Owing to the demands of the Army and Navy for cold-storage space, and the consequent shortage of such space for ordinary commercial uses, the Bureau of Markets, United States Department of Agriculture, is obtaining reports from public cold-storage warehouses as to cold storage and freezer space available as of November 16, 1918.

A tabulation of the reports already received shows 262,013 cubic feet of sharp freezer space and 781,603 cubic feet of ordinary freezer space unoccupied and not contracted for on the above date. Of this space, 89,390 cubic feet may be used for the storage of frozen fish.

The sharp freezer space is chiefly in Massachusetts and Virginia, the remainder being in Minnesota, Missouri, and Pennsylvania. The ordinary freezer space is largely in Massachusetts, Missouri, and Pennsylvania, lesser storage capacity being available in Iowa, Minnesota, Ohio, Nebraska, New York, Virginia, and Wisconsin. Space available for the storage of fish is reported in Boston, Minneapolis, New York, and Erie.

The Bureau of Markets will, upon request, furnish the trade with name and location of warehouses reporting space available on November 16. It is probable that additional space will be reported, as replies have not yet been received to all inquiries sent warehouses.

Investigations indicate that only a small minority of farm water supplies can be classed as unqualifiedly safe and desirable.

Would Perfect Crop-Reporting Service Through Making Estimates by Counties

The crop reporting service of this country should be strengthened through estimates by counties as well as by States, says the annual report of the Secretary of Agriculture, in connection with an outline of the organization and system which has been developed in the Department of Agriculture through more than half a century of experience in crop estimating.

The suggested means of strengthening the service are needed, the report says, because the monthly Government crop reports and annual estimates are fundamentally important as the basis of programs of the department and the State colleges of agriculture for crop and live-stock production, marketing, distribution, and conservation for the promotion of agriculture as an industry, for the guidance of individual farmers, and for appropriate national and State agricultural legislation affecting agriculture and the food supply.

Thus strengthened, it is noted, a near approach to census, completeness, and accuracy could be made, especially with reference to crops, acreage, and numbers of live stock; a clearer differentiation between total production and the commercial surplus which determines prices would be possible; and the department would be better able to analyze, chart, and report country-wide and world-wide agricultural conditions with special reference to surplus and deficient crop and live-stock production.

"The Bureau of Crop Estimates," says the Secretary, "rendered service of great value to the country by its regular monthly and annual crop reports and by its special inquiries for country-wide information relating to particular phases of agriculture urgently needed for immediate use by the Government. It has systematically arranged and translated into American units probably the most complete collection of data in the world relating to the agriculture of foreign countries. Since the beginning of the European war, and more especially since the entry of the United States, it has compiled many statistical statements regarding crop and live-stock production, imports, exports, per capita consumption, and estimated stocks on hand in foreign countries for the department, the Food Administration, and the War Trade Board.

DEVELOPMENT OF EXTENSION FORCES A STRIKING INSTANCE OF WAR EXPANSION

Especially striking, in expansion of work of the Department of Agriculture during the war emergency, has been the development of the extension forces, including the county agents, the control and eradication of animal diseases, and the market news services, the Secretary of Agriculture states in his annual report.

"Indications from every part of the Union," the Secretary says, "are that the efforts of the agricultural colleges and the department in emergency directions have been fruitful and are appreciated by the great masses of the farmers. * * * The question arises also whether it would not be in the national interest to make provision for the continuance of a part of the work, at least, after the end of this fiscal year. The work of the Bureau of Markets, especially through its news services, has been demonstrated to be so useful that, regarding it as of permanent value, I have transferred the emergency estimate for it, in part, to the regular bill.

"The Nation is now engaged, under the act of May 8, 1914, in developing the agricultural extension service. It would be wise to anticipate the amount that would accrue under this measure by the end of the period 1922 and to make such further provision as may be necessary for the continuance of agents of proved efficiency already on the rolls, as well as to continue the intensive work for the more speedy control and eradication of tuberculosis, hog cholera, and the cattle tick, and other important lines of effort. Expenditures for these activities are investments, and it is simply a question how rapidly the Nation wishes the work to proceed. If the finances of the Nation permit it, I urgently recommend that adequate provision be continued."

The shipper of potatoes should bear in mind that unsorted or field-run stock that shows more or less dry rot will develop more while en route to market, and that eventually he will have to pay for these losses—freight on the spoiled stock and for the labor of re-sorting at the terminal market.

For bees cellar wintering is practicable where the average outdoor temperature during the winter months is as low as 25° F.

LARGE USEFULNESS IS FOUND FOR MARKET NEWS SERVICES

Many Producers, Distributors, and Others Depend on Them, Says Report.

Displace Less Reliable Commercial Price-Quoting Agencies; Work Greatly Enlarged; Branch Offices Now are about 90.

Many producers, distributors, and others have come to depend on the market news services of the Bureau of Markets and to make less use of commercial price-quoting agencies, which are not able to furnish data so reliable, accurate, prompt, and comprehensive, according to the annual report of the Secretary of Agriculture.

The market news services were greatly enlarged in the fiscal year 1918 until branch offices numbered approximately 90. They were distributing market information to all sections of the country over practically 14,000 miles of leased wires.

The news service on fruits and vegetables was made continuous throughout the year for the first time since it was instituted. Reports were issued in season covering approximately 32 commodities and indicating daily carload shipments, the shipping prices in the particular markets throughout the country, and other shipping-point facts. Temporary field stations were operated at 82 points in two producing sections, more than twice as many as in the preceding year.

Live Stock and Meats Service Extended.

The news service on live stock and meats was extended to include additional important live stock and meat marketing centers and producing districts. New features to make the service more useful to producers in the trade were added. The daily reports on meat trade conditions, which formerly gave information on the demand, supplies, and wholesale prices of western dressed fresh meats in four of the most important western markets, now cover Los Angeles, San Francisco, and Pittsburgh also. As a supplement to the daily reports a weekly review is published. The daily telegraphic report on live-stock shipments west of the Allegheny Mountains was extended to include all live stock loaded on railroads throughout the United States. Information regarding the "in" and "out" movement in certain feeding districts is being published. This work is held to be valuable in indicating the potential meat supply of the country and is to be developed as rapidly as funds permit.

The department took over on June 1, 1918, the furnishing of all telegraphic market reports distributed daily from the Chicago Union Stock Yards on live-stock receipts and prices, not only those regularly sent over the leased wire of the Bureau of Markets, but all reports used by commercial news agencies and press associations. The substitution of a Government report for the previous unofficial services has exerted a material influence in restoring confidence in the reports of market conditions, the lack of which has been a fundamental obstacle to the development of the live-stock industry.

Dairy and Poultry Service.

The news service on dairy and poultry products gives prices of butter, eggs, and cheese, trade conditions, market receipts, storage movement, and supplies in storage and in the hands of wholesalers and jobbers. Since the fall of 1917 it has covered Washington, Boston, New York, Philadelphia, Chicago, Minneapolis, and San Francisco. Data were secured each month from approximately 14,000 dairy manufacturing plants in the United States, showing the quantities produced of such products as whey, process butter, oleomargarine, cheese of different kinds, condensed and evaporated milk, various classes of powdered milk, casein, and milk sugar.

New Laws Benefit Agriculture; Help to Solve Major Problems of Farmers

"The last five years," says the annual report of the Secretary of Agriculture, "have been especially fruitful of legislation and of its practical application for the betterment of agriculture.

"Special provision was made for the solution of problems in behalf of agriculture, embracing marketing and rural finance. The Bureau of Markets, unique of its kind and excelling in range of activities and in financial support any other similar existing organization, was created and is rendering effective service in a great number of directions. Standards for staple agricultural products were provided for and have been announced and applied under the terms of the cotton futures and grain standards acts. Authority to license bonded warehouses which handle certain agricultural products was given to the department, and the indications are that with the return of normal conditions the operations of the act will result in the better storing of farm products, the stabilization of marketing processes, and the issuance of more easily negotiable warehouse receipts.

Extension Service Developed.

"The agricultural extension machinery, the greatest educational system ever devised for men and women engaged in their daily tasks, had very large and striking development. The Federal aid road act, approved shortly before this country entered the war, resulted in legislation for more satisfactory central highway agencies in many States and the systematic planning of good road systems throughout the Union. To-day each State has a highway authority, with the requisite power and with adequate funds to meet the requirements of the Federal measure.

"The Federal reserve act, which has benefited every citizen through its influence on banking throughout the Union, included provisions especially designed to assist the farming population. It authorized national banks to lend money on farm mortgages and recognized the peculiar needs of the farmer by giving his paper a maturity period of six months.

Promise in Farm Loan Act.

"This was followed by the Federal farm loan act, which created a banking system reaching intimately into the rural districts and operating on terms suited to the farm owners' needs. This system began operations under the troubled conditions of the world war, and its activities were impeded by the vast changes incident to the entry of this country into the conflict. But, in spite of these difficulties, it has made remarkable headway, and there is little doubt that, after the return of peace, its development will be rapid and will more than fill the expectations of the people."

Dealing by parcel post succeeds if the farmer is careful to keep up the quality of his produce, packs it safely and attractively, and meets his engagements promptly, always supposing that the consumer also observes business methods in the transaction.

The use of neat and attractive containers for butter, standardized to a uniform size and style, is highly desirable both for local and foreign markets. Carelessly packed butter has not only a poor appearance, but also usually brings a lower price.

BUY WAR SAVINGS STAMPS.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Tons of Dates for Sailors.

Tons of dates, the crop grown by the United States Department of Agriculture in the date-testing gardens at Indio and Mecca, Cal., will be supplied to the Navy Department for the use of crews on board destroyers. In supplying these dates to the Navy Department the specialists of the Department of Agriculture will obtain valuable data on the keeping qualities of the varieties being tested, as well as on the effect of the different maturation processes and methods of packing used in preparing the dates for shipment—information that will be valuable to the rapidly developing date industry in the southwest. The dates, a confection rich in sugar, the department specialists say, are of great value as a concentrated food.

One War Garden Fills 1,418 Cans.

Down in Texas the girls and women have been doing their best to help feed our boys at the front. Incidentally they have won prizes and much commendation at the home products exhibit recently held in Houston, according to a field report to the States Relations Service of the United States Department of Agriculture. The prizes were awarded for quality production, but even had they been given for quantity they would have been merited. For instance, here's the output of one girl from Fairbanks, the entire product raised on her half-acre war plot: 1,080 cans of tomatoes, 150 cans of beans, 60 cans of English peas, 78 cans of tomatoes and okra, and 50 cans of sweet potatoes—1,418 cans in all. At this exhibit, which is reported to have surpassed those of previous years, the girls' club had unusually fine displays of canned, dried, and preserved vegetables and fruit.

10,640 Seed-Grain Loans Made.

The United States Department of Agriculture announces that up to November 2, 10,640 applications for seed-grain loans for fall planting had been approved. This called for a total of $2,396,160, divided between New Mexico with $16,193; Kansas, $943,147; Oklahoma, $773,271; Texas, $292,651; Montana, $300,919; North Dakota, $65,644; and Washington, $4,355. These figures are taken to indicate that farmers have appreciated and taken advantage of the Government's offer of assistance in meeting losses of crops caused by droughts. The balance of the President's $5,000,000 special fund for seed-grain loans is to be loaned for spring wheat on the basis of $5 an acre, with 100 acres as a maximum.

New Fish Trade Established.

As a result of work begun last spring as a part of the efforts to save meat for war purposes, and participated in cooperatively by the United States Department of Agriculture, the United States Food Administration, and the United States Bureau of Fisheries, over 400,000 pounds of fish have been shipped from the Gulf coast of Florida to Nashville, Louisville, Indianapolis, and other cities in the Middle West. Sea catfish, mullet, sheepshead, and other varieties of fish hitherto unknown in the Middle West, many miles from the seacoast, have been introduced and have gained a foothold that is expected to be permanent.

Arrangements between shippers, packers, railroads, and dealers at the catching points and at the markets have been so perfected that the distribution of the fish from the Gulf coast soon is expected to need no further "chaperoning" by Government agencies, but will be on an established and regular business basis.

Pennsylvania Increases Pork Production.

County agents and farm bureaus in Pennsylvania, striving to assure the 5 per cent increase in pork production requested by the Government for 1919, conducted a "pork drive" in the 10 days, October 14 to 24. Realizing that any increase in pork must result from a larger number of sows bred, the workers aimed to convince farmers to retain their brood sows. When all the counties are listed it is expected the records will show an increase of more than 12,000 brood sows kept, easily providing for the increase of 60,000 market hogs necessary to assure the 5 per cent increase in pork. A careful study has shown that there was a decided increase in pork production in Pennsylvania during the past year.

Rabbit Raising Pays in Utah.

In Utah many boy and girl club members are going into the rabbit-raising business, finding it most profitable, according to word received by the States Relations Service, United States Department of Agriculture. They have found that it costs about 25 cents to raise a rabbit to the age of three months, and that at that time it may be marketed at 35 or 40 cents a pound. The pelts bring from 15 to 75 cents, depending on the kind of rabbit and its size. Compared with poultry, rabbit raising in Utah has proved much more economical, as rabbits are very hardy and require no expensive feed. For example, one club boy reports that he feeds only oats, cabbage, and water. In some places in the State the demand exceeds the supply. Hotels and restaurants, which serve rabbit as often as they do chicken, are the chief buyers. The Bureau of Biological Survey and the Bureau of Markets are cooperating actively in developing interest in the production and marketing of domesticated rabbits and in standardizing methods of handling these animals and the wild rabbits which are killed for sport or to protect crops from their depredations.

Girls' Clubs Help Red Cross.

Sewing-club girls of Massachusetts, working under the direction of home-demonstration agents of the United States Department of Agriculture and the State agricultural college, made and delivered to the American Red Cross 18,297 pieces or garments, at a total cost of $1,427.91, during the season of 1918. There are 202 home economic clubs in the State, with an enrollment of 2,980. Of this number, 1,596 completed all the work allotted them, 39 of the club groups being in the 100 per cent class, according to information just received by the Department of Agriculture. The bread-club members in Massachusetts also produced 40,306 loaves of bread and the garment-making clubs 1,890 garments.

County Increases Wheat 450 Per Cent.

As a result of the call made by the United States Department of Agriculture for an increased acreage of wheat, the county agent of Benton County, Ind., reports that the acreage in that county has been increased from less than 2,000 acres last year to approximately 8,300 acres this year, or an increase of about 450 per cent.

Agree on Price of Milk.

As the result of a plan worked out by the county agent of Elkhart County, Ind., a price has been established for milk which is satisfactory to producers, distributors, and consumers. A committee was appointed to investigate the proposed milk price which distributors were about to ask. This committee met with representatives of distributors, producers, and consumers, and as a result it was mutually agreed that the retail price of milk be 11 cents a quart and 6 cents a pint, provided the distributor pay the producers an average price of $3.05 per 100 pounds of milk containing 3½ per cent butter fat. This wholesale milk price was distributed throughout the year by months as follows: October, $3.15; November, $3.35; December, $3.35; January, 1919, $3.35; February, $3.30; March, $3.15; April, $2.90; May, $2.70; June, $2.70; July, $2.80; August, $2.85; September, $2.95.

Boys Teach Fathers Better Hog Raising.

Some of the boys in the two Dekalb County, Ind., pig clubs are showing their fathers how rapid and economical gains can be made in raising pigs. Under the direction of the local county agent these boys have been able to almost double the results obtained by their fathers within the same length of time and feeding pigs of the same litter. The boys used self-feeders and the fathers did not, and the pigs which were allowed to select their own feed made gains of 2 pounds a day. The club members are proving, beyond question, the merits of the self-feeder, and hog raisers in the county of many years' experience are beginning to copy the boys' methods. As a result of the club work, the county agent reports, many fathers and sons are now planning to go into partnership and raise pure-bred hogs.

In Four Weeks, 4,000 Cans.

One canning club in Manatee County, Fla., in four weeks' time, canned 4,000 cans last summer. The members organized under the direction of the home demonstration agent to take care of the surplus fruit and vegetables in their neighborhood. No products the farmers could dispose of otherwise were used. The results showed an average of 1,000 cans a week saved by their efforts.

Real Stuff in This Girl.

At one of the Wyoming boys' and girls' club conferences held recently in Star Valley was a leader of one of the local canning clubs, who had ridden horseback 15 miles to a neighbor's, left her animal to rest, borrowed another horse, and continued to the conference, many miles farther, arriving at Star Valley at 9.15 in the morning. About 5 o'clock in the afternoon this girl started on her return, exchanged animals at the neighbor's house, went on to her home, did the regular chores of the night, and reported on the happenings at the conference to the other members of her home. Traveling thus by relay, the girl attended all three days of the conference.

Supervisors Aid Garden Work.

Two cents per capita was all it cost to conduct the garden work last season in seven Indiana cities in which assistant county agents were placed. This amount paid for the supervision and office work connected with the gardening campaign and for the plowing, etc. In the seven cities there were 129,000 gardens that produced products valued at $1,550,000, the total cost being $11,933. Although the increase in total number of gardens in the State over the previous year amounted to 28 per cent, the estimated increase in the seven cities was about 60 per cent, which, it is believed, demonstrates the value of proper supervision. In none of the cities in Indiana were the gardens kept in better condition and the production of vegetables per garden greater than in the cities in which the assistant county agents operated. In several other cities the average gardens were just as good, but these communities also employed good garden supervisors. A total of 150 supervisors were employed in 102 cities and towns in the State. In addition to this number the garden work in 65 cities and towns was supervised by garden committees.

Indiana Makes Good Garden Record.

During the spring and summer of 1918 approximately 640,000 gardens were planted in Indiana, which produced products of an estimated value of $15,000,000, according to the report of the Indiana county agent leader. This number includes both city and farm gardens and is based on reports obtained from 175 cities and towns. The increase in the number of gardens over 1917 was 28 per cent and the increase in value 50 per cent. The higher percentage of increase in value can be explained in two ways. The size of the individual garden was increased in many cases, thus producing more vegetables, and the larger number of people who gardened for the first time in 1917 were more proficient gardeners during the 1918 season, and consequently were able to produce more food on a given amount of ground. According to the report of the county agent leader, people living on farms planted one garden for every four farm dwellers—those in towns of less than 2,500 population, one garden per 4.8 inhabitants in such towns, and those in cities of more than 2,500. one for every 5.1 citizens. Approximately 100,000 acres were devoted to growing vegetables for home consumption in Indiana during the past summer.

Beekeeping in National Forests.

The possibilities of beekeeping in the national forests in southern California are being investigated by apiculturists of the United States Department of Agriculture in cooperation with the Forest Service. Dr. E. F. Phillips and Mr. George S. Demuth have gone to southern California to investigate the subject, and while there will assist State authorities in conducting extension schools for commercial beekeepers at San Diego, Davis, Visalia, and Riverside. Each one of these schools will be conducted for six days, and three sessions daily will be held.

European Potato Wart in Pennsylvania.

The European potato wart, a serious disease of potatoes which was the subject of one of the first quarantines made by the United States Department of Agriculture under the plant quarantine act, has appeared in a small district in eastern Pennsylvania. As potato growing in this district is confined to small gardens only, and as there is no commercial production, specialists believe that there is little likelihood of other than local spread of the disease. The source of infestation in this district has been traced to the distribution of European potatoes of inferior quality in 1912, before the passage of the plant quarantine act of August 20 of that year. Since the passage of that act no potatoes have come to America from European countries where this disease is known to exist. The Department of Agriculture and the Federal Horticultural Board are in active cooperation with the Pennsylvania State authorities in making the necessary restrictive measures to pre-

vent infected material from moving out of the district, and are planning to take radical steps to stamp out the disease.

How Farm Boys Wakened Father.

One of the outstanding results of boys' agricultural club work in Tennessee has been its effect upon the parents of the members. Three sons of a Madison County farmer joined the corn club last year. One son produced 144 bushels on his acre, another 139 bushels, and the third 120 bushels, the profit from the 3 acres being $464.64. This demonstration wakened the father to the opportunities at his very door. He has pulled out of the rut, adopted progressive ideas, and has become a "live wire" and a recognized leader in his neighborhood.

SECRETARY TELLS 1918 ADVANCES BY AMERICA'S ARMY OF THE SOIL

(Continued from page 1.)

1918 is given at 8,500,000,000, as against 6,079,000,000 for 1914, the year preceding the European war; and that the total for 1918 of beef, pork, and mutton is given at 19,495,000,000 pounds as against 15,587,000,000 pounds for 1914.

Value Greatly Increased.

On the basis of prices that have recently prevailed, the Secretary says, the value of all crops produced in 1918 and of live stick on farms on January 1, including horses, mules, cattle, sheep, swine, and poultry, is estimated to be $24,700,000,000 compared with $21,325,000,000 for 1917, and $11,700,000,000, the annual average in the five-year period 1910 to 1914. This greatly increased financial showing, the Secretary explains, does not mean that the Nation is better off to that extent, or that its real wealth has advanced in that proportion. Considering merely the domestic relations, the true state is indicated rather in terms of real commodities. The increased values, however, do reveal that monetary returns to the farmers have increased proportionately with those of other groups of producers in the Nation and that their purchasing power has kept pace in the rising scale of prices.

Yields in 1918 of the major food crops were as follows, the Secretary reports, according to unrevised estimates: 2,749,198,000 bushels of corn, 918,920,000 bushels of wheat, 1,535,297,000 bushels of oats, 236,505,000 bushels of barley, 76,687,000 bushels of rye, 18,370,000 bushels of buckwheat, 41,918,000 bushels of rice, 61,182,000 bushels of kafirs, 390,101,000 bushels of Irish potatoes, 88,114,000 bushels of sweet potatoes, 17,802,000 bushels of commercial beans, 40,185,000 bushels of peaches, 10,342,000 bushels of pears, 197,360,000 bushels of apples, 6,549,000 tons of sugar beets, 29,757,000 gallons of sorghum sirup, 52,617,000 bushels of peanuts.

The estimated 1918 production of all the cereals, 5,638,077,000 bushels, compares with 5,796,332,000 bushels in 1917, and 4,883,819,000 bushels, the annual average in the five-year period 1910–1914. On January 1, 1918, it is estimated, there were on American farms 21,563,000 horses, compared with an average of 20,430,000 in the 5 years of 1910–1914; 4,824,000 mules, compared with 4,346,000; 23,284,000 milch cows, compared with 20,676,000; 43,546,000 other cattle, compared with 38,000,000; 48,900,000 sheep (an increase, for the first time in many years, over the preceding year), compared with 51,929,000; 71,374,000 swine, compared with 61,865,000.

The estimated 1918 production of beef, 8,500,000,000 pounds, compares with 7,384,007,000 pounds in 1917; 10,500,000,000 pounds of pork compares with 8,450,148,000; 495,000,000 pounds of mutton and goat meat, compared with 491,205,000; 8,429,000,000 gallons of milk produced in 1918 was 141,000,000 gallons more than the 1917 production; 299,921,000 pounds of wool, 18,029,000 pounds more than 1917; 1,921,000,000 dozens of eggs, 37,000,000 dozens more; 589,000,000 head of poultry, 11,000,000 more.

Farmers Praised for Their Work.

The part played in backing up the war by the millions of men, women, boys, and girls on the farms and the organized agricultural agencies assisting them, including the Federal Department of Agriculture, the State colleges and departments of agriculture, farmers' organizations, and the agricultural press, is striking, the Secretary says, but is altogether too little known and appreciated. Within the last year, however, he sees a change. The attention of the world has been directed to its food supply. The towns and cities, he points out, all are directly dependent upon agriculture for their existence, and most of them for their growth and prosperity. They must of necessity take an intelligent, constructive interest in rural problems and in the betterment of rural life. They can do this effectively, he says, only as they inform themselves and lend their support to the plans carefully conceived by the Federal and State organizations and by the more thoughtful and successful farmers. Marked responses in every part of the Union are noted to appeals that have been made by the department to enlist more complete cooperation by bankers and other business men, and of their associations in the effort to make agriculture more profitable and rural communities more healthful and attractive.

Cooperation of Official Agencies.

Cooperation to aid in securing larger production and fuller conservation during 1917 and 1918 between the department and the State colleges and commissioners of agriculture is acknowledged. The Secretary expresses appreciation for generous support given also by the great agricultural journals and the National Agricultural Advisory Committee. "The great importance" of the cooperative Agricultural Extension Service is described as having been emphasized by the emergency through which the Nation has passed. It has become increasingly clear, the Secretary says, that no more important piece of educational machinery has ever been created for men and women engaged in their daily tasks.

Work of the Department During War.

"It would require a volume even to outline all the things which the Department of Agriculture has done," the report states. "It stimulated production, increasingly controlled plant and animal diseases, reducing losses from the cattle tick, hog cholera, tuberculosis, predatory animals, and crop pests, and in conjunction with the Department of Labor rendered assistance to the farmers in securing labor. It safeguarded seed stocks and secured and distributed good seeds to farmers for cash at cost; acted jointly with the Treasury Department in making loans from the President's special fund to distressed farmers in drought-stricken sections; aided in transferring stock from the drought areas; greatly assisted in the marketing of farm products, and under enormous difficulties helped the farmers to secure a larger supply of fertilizers. At the direction of the President, it is administering under license the control of the stockyards and of the ammonia, fertilizer, and farm-equipment industries."

The department, it is pointed out, has maintained intimate touch with the War and Navy Departments, the War Industries, War Trade, and Shipping Boards, and the Fuel and Food Administrations. By means of the research records or facilities and the staff of experts in its various bureaus it has aided in many of the war-time enterprises of the Nation. It has inspected meat for the Army and Navy, supplied information in the purchase or use of forest products, made a thorough study of the lumber situation, helped to stimulate the use of low-grade cotton, prepared technical specifications for commodities needed for other departments, tested fabrics and supplies,

worked out formulas for water-proofing leather, collaborated with the War Department in its handling of the draft with special reference to leaving on the farms the indispensable skilled agricultural laborers, and rendered active and valuable aid in many other directions.

Plans for 1919.

"It is too early," the Secretary says, "to make detailed suggestions for the spring planting season of 1919. During this fall the department, the agricultural colleges, and other agencies carried on a campaign for a large wheat acreage, and indications were given by States as to where the requisite planting could be secured without calling for an extension of the area or even a normal acreage in the States which had suffered from drought for two years. It was suggested that, if possible, at least 45,000,000 acres of wheat should be planted. Fortunately, we have two seasons for wheat sowing, and the department was aware of the fact that if a large acreage was planted in the fall and came through the winter in good condition there would be an opportunity to make appropriate suggestions in reference to the spring operations. The informal indications coming to the department are that the farmers exceeded the plantings suggested by the department.

"We do not know how either the wheat or the rye will come through the winter, and are not now able to state what the requirements should be for the next season, nor can anyone now tell what the world demand will be at the close of the harvest season of 1919. We do know that for the ensuing months the Nation is likely to be called upon for large quantities of available food and feeds to supply not only the peoples with whom we cooperated in the war, but also those of the neutrals and the central powers. This will involve a continuation of conservation on the part of our people and probably of the maintenance of a satisfactory range of prices for food products during the period.

"When the nations of Europe will return to somewhat normal conditions and resume the planting of bread and feed grains sufficient in large measure to meet their requirements, and whether the shipping will open up sufficiently to permit the free movement of grains from distant countries like Australia, India, and Argentina, it is impossible now to say. It it certain that all these nations will direct their attention very specifically to the producing of supplies in respect to which good returns may naturally be expected. It will be to the interest of the whole world to expedite this process as much as possible; and, while the problem of immediate distribution of available foods demands urgent consideration, the production programs for the next harvest should also receive no less common and urgent attention."

More Live Stock and Fats Needed.

"Two things seem to be clear. One is that for a considerable period the world will have need particularly of a larger supply than normal of certain live stock, and especially of fats. We must not fail, therefore, to adopt every feasible means of economically increasing these things, and as a part of our program we shall give thought to the securing of an adequate supply of feedstuffs and to the eradication and control of all forms of animal disease. The department has already taken steps in this direction and has issued a circular containing detailed suggestions.

"Another is the need of perfecting the organization of our agricultural agencies for the purpose of intelligently executing such plans as may seem to be wise. We shall not only attempt to perfect the organization and cooperation of the Department of Agriculture, the agricultural colleges and State departments, and the farmers' organizations, but we shall especially labor to strengthen the local farm bureaus and other organizations which support so effectively the extension forces and assist them in their activities. This is highly desirable, not only during the continuance of present abnormal conditions, but also for the future. The local, as well as the State and Federal, agencies are of supreme importance to the Nation in all its activities designed to make rural life more profitable, healthful, and attractive, and therefore to secure adequate economic production, efficient distribution, and necessary conservation.

"The Department of Agriculture, the agricultural colleges, and other organizations will continue to give definite thought to all the problems, will keep close track of developments, and at the proper time in advance of the next planting season will lay the situation before the farmers of the Nation. They will attempt to outline the needs and to suggest particular crops, the increased production of which should be emphasized."

Increasing the Meat Supply.

Campaigns for increased production have given especially fruitful results in respect to pigs and poultry, it is recorded. Indications are that the increase of 15 per cent in pork production this year over 1917, asked for by the Food Administration, will be realized, at least in weight if not in number of hogs. Poultry and eggs also show a material increase, and enormous quantities of the latter were preserved by householders in the season of plenty for use in time of scarcity.

Steps were taken also to encourage the growing of cattle and sheep, but results are naturally slower with these animals than with pigs and poultry. In fighting animal diseases the department finished work that in December, 1917, resulted in the freeing of 67,308 square miles in the Southern States from cattle-fever ticks, and that in December of this year will add 79,217 more square miles to the cleaned area. Losses from hog cholera in the year ending March 31, 1918, amounted to only $32,000,000, as compared with $75,000,000 in 1914, a reduction of more than 50 per cent in less than in 5 years. Thus the death rate from hog cholera has been reduced from 144 a thousand in 1897 and 118 in 1914 to 42 in 1917, the lowest in 35 years, as the result of methods of control involving farm sanitation, quarantine, and the application of antihog-cholera serum. Through treating immature pigs with serum and allowing them to be shipped out as stockers and feeders, it is believed that during the last year the Nation's pork supply was increased about 40,000,000 pounds. Efforts to eradicate tuberculosis are concentrated on driving the disease from herds of pure-bred cattle, with the object later of attacking the disease in swine and of driving it from circumscribed areas. An accredtted list of pure-bred cattle herds from which breeding stock may be secured with reasonable assurance that it is free from tuberculosis has been established. Further progress is recorded in the eradication of parasitic and other diseases that for many years have exacted great annual tribute from live stock on American farms.

Predatory Animals Killed.

Destruction of predatory animals by the department's hunters in the West is estimated to have saved during the year live stock valued at $2,376,650. Cooperative State campaigns, organized to exterminate native rodents such as prairie dogs, ground squirrels, pocket gophers, and jack rabbits, which annually destroy $150,000,000 worth of food and feed products, have proved to be practical and of great immediate value in increasing grain and forage production.

The number of cattle permitted to graze during the 1918 season on the national forest ranges was nearly 2,140,000 and of sheep more than 8,450,000. In two years there were placed on the forests approximately 1,000,000 additional head of live stock, representing about 25,000,000 pounds of beef, 16,000,000

pounds of mutton, and 4,000,000 pounds of wool.

"The use of the national forest ranges is increasing and their productivity is rising under the system of regulation," says the report. "Never was the wisdom of Government control of these ranges more manifest than at the present time."

Continued encouragement was given to the development of the dairy industry in the Southern and Western States, to the organization and operation of cheese factories in the mountainous regions of the South, and to the building of silos as a means of providing winter feed. The food value of dairy products was brought to the attention of the consuming public and their economic use was advocated.

Market News Services Extended.

The market news services established by the department on a relatively small scale were enlarged until at the close of the fiscal year there were approximately 90 branch offices distributing market information to all sections of the country over practically 14,000 miles of leased wires. The services cover fruits and vegetables, live stock and meats, dairy and poultry products, grain, hay, and feed and seeds. The local market reporting service, conducted primarily for the benefit of growers and consumers, has been extended until now it covers 16 cities. The food products inspection service, through which shippers may receive certificates from disinterested Federal representatives as to the condition of their fruit and vegetable shipments upon arrivals at large central markets, is now in operation in 36 important markets. This service was used extensively by the Food Administration and by the Army and Navy in their purchases of food supplies.

The Farm Labor Supply.

The department continued to give earnest attention to the securing and mobilization of an adequate supply of farm labor. It maintained its representatives stationed in each State in the spring of 1917, perfected its own organization, and more fully coordinated its activities with the Department of Labor. It made special efforts to secure the cooperation of urban communities to aid farmers in planting and harvesting their crops. Although the largest acreage on record was planted, it is stated that the great crops of the year were harvested under difficulties not appreciably greater than those in normal times.

Progress in Other Work.

The report indicates the progress that has been made in the efforts to eradicate the pink bollworm of cotton and the canker disease of citrus fruits, calls attention to the necessity of additional restrictions on the entry of certain classes of nursery stock and other plants and seeds, outlines the machinery used by the Bureau of Crop Estimates in securing data upon which its estimates are based, and describes the efforts of the department in securing and distributing nitrate of soda to farmers for cash at cost, and in making loans to farmers in drought-stricken regions.

Urges Enactment of Water-Power Bill.

"In my report of last year," the Secretary says, "I emphasized the need of water-power legislation and, since three departments would be directly involved, suggested that it contain a provision for an administrative commission composed of the Secretaries of War, the Interior, and Agriculture. After prolonged consideration by a special water-power committee, a measure was drafted and was passed by the House of Representatives. Its early enactment into law would remove many uncertainties in the water-power situation and would directly conduce to the public interest."

Need for Personal Credits.

The Secretary recommends the provision of a system of personal-credit unions, especially for the benefit of individuals whose financial circumstances and scale of operations make it difficult for them to obtain accommodations through ordinary channels. Organized commercial banks make short-term loans of a great aggregate volume to farmers possessing the requisite commercial credit, but investigations by the department have shown there are many farmers prevented by circumstances from securing accommodations they need.

What further can be done by the Federal Government directly to stimulate personal-credit unions it is difficult to outline, says the Secretary. The conclusion up to the present seems to be that the field is one primarily for the States to occupy through sound legislation. In the last five years State laws more or less adapted to the purpose have been enacted in Massachusetts, New York, Rhode Island, Wisconsin, Texas, North Carolina, South Carolina, Utah, and Oregon.

Discusses Land Settlement.

Referring to the increased interest in land for homes and farms and also the suggestion that returned soldiers and others may wish to secure farms, the Secretary says it is clear that there is still room in the Nation for many more people on farms. The United States proper contains about 1,900,000,000 acres of land, of which 1,140,000,000 acres, or 60 per cent, is tillable. Approximately 367,000,000 acres, or 32 per cent, of the tillable land was planted in crops in 1918. In other words, for every 100 acres now tilled 300 acres may be utilized when the country is fully settled. Because much of the best land is not used, extension of the farm area will be made with greater expense for clearing, preparation, drainage, and irrigation, and for profitable operation will involve marketing arrangements of a high degree of perfection and a discriminating selection of crops for a relatively high unit value.

"It would be desirable," says the Secretary, "to facilitate land settlement in more orderly fashion. This can be effected in a measure by systematic attention on the part of the Federal Government, the States, and the several communities through appropriate agencies to furnish more reliable information, intelligent guidance, and well-considered settlement plans."

It is particularly vital, the report points out, that by every feasible means the processes of acquiring ownership of farms be encouraged and hastened. Operation of the farm loan system and the legislative steps that have been taken to promote better credit terms for farmers will have a tendency to hasten this process.

Would Continue Supervision of Stockyards.

"The restoration and maintenance of conditions which will justify confidence in the live-stock markets and meat packing industry is the greatest single need in the present meat situation in the United States," says the secretary in a section of his report advocating the continuation and development in some form of Federal supervision over the stockyards and packing industry.

"Under the authority conferred upon the President by the Food Control Act," his report states, "substantial progress has been made by the Department of Agriculture in the regulation and supervision of stockyards and of commission men, traders, order buyers, packers, and others handling or dealing in live stock in or in connection with stockyards. The important results already accomplished in the improvement of live-stock marketing conditions and in the elimination of many uneconomic and unfair market practices, demonstrates the effectiveness of the form of control which has been exercised under the war power, and the desirability of continuing it or a similar form of supervision.

"Not only the stock men who patronize these great centers of live-stock trade, but also some members of the trade themselves, have recognized the possibilities for betterment of marketing conditions through the regulation by the department,

utilizing its corps of supervisors clothed with the requisite authority. Besides the protection thus extended by sellers of live stock for sale at the markets the opportunity is afforded for improvement in methods, facilities, and trade practices incident to the handling and sale of live stock involving many millions of dollars daily.

"Closely associated with the supervision of live-stock markets is the problem of a similar authority over the slaughtering, meat packing and related interests which are centered at the principal live-stock markets. Under the regulations applied to meat-packing establishments by the Food Administration, limitations have been placed on profits of meats and by-products handled by these establishments, the installation of uniform accounting systems has progressed with comparative rapidity and the centralization of control by a small group of packers has been materially checked. The economic welfare of meat production and distribution would be promoted by the continuation and development in some form of the supervision over the packing industry. Such control should be closely coordinated with that over the live-stock markets. There is need, in connection with this supervisory system, of a central office to which packing concerns should be required to report currently in such form and detail that this central office would be constantly informed concerning their operations. Such an arrangement would afford protection to producers and consumers." The Secretary urges that the necessary legislation be enacted at the earliest possible moment.

To Resume Road Work in Full.

Cooperative road construction work under the Federal aid act, the Secretary announces, will be resumed in full measure and be vigorously prosecuted at the earliest possible moment. If the work proceeds without any undue restriction, its volume will be represented by the cooperative expenditure of over $70,000,000, from Federal and State sources, during the present fiscal year, and for the fiscal year 1920 there will be available $20,000,000 of Federal funds which will doubtless be met by larger contribution from State sources.

"In the transition from war to peace," the report states, "there will doubtless be a period in which some laborers engaged in war activities and men released from the Army will be seeking new tasks and, so far as governmental intervention is concerned, the tasks upon which they may be employed should be of the highest public utility. There are, however, few kinds of public works whose construction is better worth expanding and pressing than public roads. An additional appropriation from the Federal Treasury, to be expended through the Department of Agriculture, for highway construction, would seem to be desirable and fully warranted. If ample funds are made available to the department, they should be expended on projects selected after consultation with the Federal departments interested, especially War, Commerce, and Post Office, as well as with the State central highway authorities."

Emergency Work Valuable.

Recommending that adequate provision be made for the continuation during the next fiscal year of at least a part of the emergency activities conducted under the food production act, the Secretary says that indications from every part of the Union are that the efforts of the colleges and the department have been fruitful and are appreciated by the great masses of the farmers. It would be wise, he states, to anticipate the amount that would accrue under the agricultural extension act by the end of the period 1922 and to make such further provision as may be necessary for the continuance of agents of proved efficiency already on the rolls, as well as to continue the market news services, the intensive work for the more speedy control and eradication of tuberculosis, hog cholera, and the cattle tick and other important lines of effort. He also recommends that Federal feed and fertilizer laws be enacted in order to protect consumers against misbranded, adulterated, and worthless feeds and fertilizers entering into interstate commerce.

Need for Rural Health.

The report devotes a section to rural health and sanitation and emphasizes the necessity of seeing to it that the benefits of modern medicine accrue more largely to the scattered populations of the rural districts.

"It seems clear," the Secretary says, "that there should be no cessation of activity until there has been completed in every rural community of the Union an effective sanitary survey and, through the provision of adequate machinery, steps taken to control and eliminate the sources of disease and to provide the necessary modern medical and dental facilities, easily accessible to the masses of the people."

TRIBUTE TO AMERICAN FARMERS.

"Perhaps no branch of the public service is in position to recognize so promptly and appreciate so fully as the Bureau of Crop Estimates what has been accomplished by the farmers of the United States since the breaking out of the world war," says the annual report of that bureau. From the reports of its thousands of voluntary crop reporters and its field agents who travel over each State and report weekly and monthly their observations, the bureau is in constant touch with the progress of crop production from month to month and year to year. It has seen the supply of farm labor steadily decrease from heavy drafts made upon it by other industries, especially since the beginning of the war, and it has noted the decrease in the supply of commercial fertilizers. It has noted also the steady rise in farm wages, and in prices of farm machinery and everything else that farmers have to buy. With an unbounded faith in the patriotism and determination of farmers to do their utmost to help win the war by maintaining the production of food and raw materials, it nevertheless has marveled that the farmers of the United States apparently have accomplished the impossible by continuing to plant larger areas and to harvest larger crops in the aggregate with each year of the war in spite of the difficulties of securing farm labor, supplies, machinery, and other necessary articles.

"The planting and cultivating of 32,000,000 acres more in 1917 than in 1914 by the farmers of this country is comparable with anything that has been accomplished by any other industry. This production of food crops on an enlarged scale, at greatly increased expense of time, effort, and labor and by fewer men, steadily and without publicity or the inspiration that comes from large bodies of men working together, has done as much to insure the winning of the war against the military despotism of Europe as any other one factor."

TRUCK CROP REPORTS VALUABLE.

Since December, 1917, a weekly report giving timely information concerning acreage, condition, and production of truck crops has been published by the Bureau of Crop Estimates, United States Department of Agriculture. This report, known as the Weekly Truck Crop News, has been of great value to truck growers and dealers by whom inquiries exceeding those of 1917 by 33 per cent were made to this bureau during the year. These covered condition, acreage, dates of planting and harvesting, yield per acre, price paid to growers, per cent stored, per cent abandoned, per cent shipped out of county, per cent consumed on farms, etc.

The reports published during the year showed an increase of about 106 per cent. Also, this bureau issued during the year estimates of the numbers, prices, and value of different classes of live stock, losses from disease and exposure, number of breeding sows, and the number of stock hogs compared with last year.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI DECEMBER 18, 1918 No. 20

PRESIDENT FAVORS PUSHING CONSTRUCTION OF HIGHWAYS

Secretary of War Also Advocates Early Resumption of Road Work

Send Letters Indorsing Views of Secretary of Agriculture on Activities under Federal Aid Act—Added Appropriation Desirable

President Wilson favors the earliest possible resumption and extension of highway construction under the Federal aid road act, and has written Secretary of Agriculture Houston to that effect. The Secretary of War also has written the Secretary of Agriculture in favor of highway work.

Views of President.

The President's letter follows:

"DEAR MR. SECRETARY: I heartily agree with you that it would be in the public interest to resume in full measure the highway construction operations under the Federal aid road act, and to do so as speedily as possible. I understand the necessity which existed for their contraction during the stress through which we have been passing, but that obstacle is now removed. I believe that it would be highly desirable to have an additional appropriation made available to the Department of Agriculture, to be used in conjunction, if possible, with any surplus State and community funds, in order that these operations may be extended. It is important not only to develop good highways throughout the country as quickly as possible, but it is also at this time especially advisable to resume and extend all such essential public works, with a view to furnishing employment for laborers who may be seeking new tasks during the period of readjustment. Knowing that the Department of Agriculture and the State highway authorities in each State have been carefully working out road systems and developing plans and specifications, I have no doubt that all activities in this field can be vigorously conducted through these two sets of existing agencies, acting in full accord.

"Faithfully, yours,

"WOODROW WILSON."

From Secretary of War.

The following letter has been received from Secretary of War Baker:

"MY DEAR MR. SECRETARY: I am in full agreement with your view that there should not only be a prompt resumption of road construction under the Federal aid road act, and under such further authority as may exist for separate State action, but also that additional funds should be made available to your department for the extension of such work. The War Department, as you know, detailed one of its officers to serve with your Bureau of Public Roads in its consideration of highways which might have a value for military purposes, and I shall be glad to have the closest possible cooperation continue as the work enlarges.

"Cordially, yours,

"NEWTON D. BAKER,

"*Secretary of War.*"

ROADS TO FURNISH EMPLOYMENT.

In the transition from war to peace there doubtless will be a period in which some laborers engaged in war industries and men released from the Army will be seeking new tasks and, so far as governmental intervention is concerned, the tasks on which they may be employed should be of the highest public utility.

Public works would furnish suitable employment for many unemployed men, and among such enterprises there are few kinds whose construction is better worth expanding and pressing than public roads.—Secretary Houston.

WOULD HAVE GUIDANCE FOR SETTLEMENT OF IDLE LANDS

Secretary Sees Harm to Nation from Irresponsible Activities

Responsibility for Increased Production on Individuals and State and Federal Agencies—Encouragement of Ownership Urged

Discussing the capacity of the United States to provide for a very much larger population, the Secretary of Agriculture, in his annual report, says that the responsibility rests upon each individual, and especially upon the farming population and State and Federal agencies responsible for leadership.

"We have, up to the present, succeeded in this enterprise," the Secretary says. "In the years from 1900 to 1915 the Nation gained a population of approximately 22,000,000, and they have been fed and clothed in large measure from domestic sources. It is estimated that in the years from 1915 to 1918 the population increased by 3,200,000, of which a very small part was from immigration. We shall, perhaps, gain as many more in the next 15 or 20 years, even if the rate of immigration should not be maintained, for the natural growth in recent years, averaging about three-fourths of a million a year, shows an upward tendency.

Haphazard Work Harmful.

"It would be desirable to facilitate land settlement in more orderly fashion. This can be effected in a measure by systematic effort on the part of the Federal Government, the States, and the several communities through appropriate agencies to furnish more reliable information, intelligent guidance, and well-considered settlement plans. The Nation has suffered not a little from irresponsible and haphazard private direction of settlement. In many sections, especially in the newer and more rapidly developing

The emergency through which the Nation has passed only served to emphasize the supreme importance of the Cooperative Agricultural Extension Service. It has become increasingly clear that no more important piece of educational extension machinery has ever been created.—Secretary Houston.

ones, the situation has been complicated by the activities of premoters whose main concern was to dispose of their properties. They too frequently succeeded in attracting farmers to localities remote from markets where they either failed to produce crops or met with disaster through lack of market outlets or adequate marketing arrangements.

"It is particularly vital that by every feasible means the processes of acquiring ownership of farms be encouraged and hastened. This process is real in spite of appearances to the contrary. It has been too generally assumed and represented that tenancy has increased at the expense of ownership and that we are witnessing agricultural deterioration in this direction. Tenancy does present aspects which should cause great concern, but its bright sides have not been sufficiently considered. The situation does not warrant a pessimistic conclusion. In the 30 years from 1880 to 1910 the number of farms in the United States increased from 4,009,000 to 6,362,000, the number of those owned from 2,984,000 to 4,007,000, a gain of 1,028,000, or 34.3 per cent, and the number operated by tenants from 1,025,000 to 2,355,000, a gain of 1,330,000, or 129.9 per cent. But in 1910 five-eighths of the farms and 68 per cent of the acreage of all land in farms were operated by owners and 65 per cent of the improved land. The number of farms increased faster than the agricultural population. The only class not operating farms who could take them up were the younger men, and it is largely from them that the class of tenants has been recruited.

Tendency Toward Improvement.

"In a recent study of the cases of 9,000 farmers, mainly in the Middle Western States lying in the Mississippi Valley, it was found that more than 90 per cent were brought up on farms; that 31½ per cent remained on their fathers' farms until they became owners and 27 per cent until they became tenants, then owners; that 13½ per cent passed from wage earners to ownership, skipping the tenant stage; and that 18 per cent were first farm boys, then wage earners, later tenants, and finally owners. It is stated, on the basis of census statistics, that 76 per cent of the farmers under 25 years of age are tenants, while the percentage falls with age, so that among those 55 years old and above only 20 per cent are tenants. In the older sections of the country (except in the South, which has a large negro population), that is, in the New England and Middle Atlantic States, the tenant farmers formed a smaller proportion in 1910 than in 1900. This is also the case with the Rocky Mountain and Pacific divisions, where there has been a relative abundance of lands. The conditions on the whole, therefore, are not in the direction of deterioration but of improvement. The process has been one of emergence of wage laborers and sons of farmers first to tenancy and then to ownership.

"The legislative steps that have been taken to promote better credit terms for farmers will have a tendency to hasten this process. The operation of the farm-loan system through arrangements, by which those who have sold lands take a second mortgage subordinate to the first mortgage of the farm-land banks carrying a relatively low rate of interest, will have a beneficial influence. If further developments can be made through the application of the principle of cooperation, especially in the formation of personal-credit unions, the conditions will be more favorable. In the meantime special attention and study should be given to the terms of tenancy, including the lease contract, with a view to increase the interest both of the landlord and of the tenant in soil improvement, and to make sure that there is an equitable division of the income.

TWO-TO-ONE FOR COUNTY AGENT WORK.

Voters of Towner, Ramsey, and Cass Counties in North Dakota decided at the recent elections by two-to-one votes to continue county agent work. Such popular support of county agent work is becoming general throughout the country, and is regarded as evidence of how valuable the county agents are proving themselves to their communities in securing the best returns from agricultural resources.

SELLS COTTAGE CHEESE SAUSAGE.

As a result of the follow-up work done by the Massachusetts State cottage cheese demonstrator, who is under the supervision of the Massachusetts State Agricultural College at Amherst, and the Department of Agriculture, a Berkshire County farmer is selling cottage cheese sausage.

The sausage, which resembles in flavor that made from pork, is made from cottage cheese, bread crumbs, and nut meats and is seasoned with herbs. Its food value is nearly equal to pork sausage. Another farmer is planning to furnish a supply of the cottage-cheese sausage for the Pittsfield market. This appetizing substitute for meat was originated by the Dairy Division of the Department of Agriculture to further the use of cottage cheese.

WILL INCREASE CHARGES FOR GRAZING ON NATIONAL FORESTS

Secretary Announces New Rates in Effect on March 1 Next

Granting of Five-Year Permits Where Conditions Warrant Authorized—Reasons for Higher Fees Discussed in Statement

Secretary Houston, believing that further suspension of the increase in national forest grazing fees first decided on in 1916 is no longer justified, has announced new rates to go into effect March 1, 1919. Effective at the same time, he has authorized the granting of 5-year grazing permits where the conditions warrant and such permits are desired by the stockmen.

"In accordance with the conclusion reached by me on February 1, 1917," Secretary Houston has informed the stockmen through letters to their two national associations, "that the charge for grazing should be based upon the real value of the forage, I have decided that beginning March 1, 1919, the charge for grazing upon the national forests during the year-long period will be from $0.80 to $1.50 per head for cattle, varying with the advantages of the different ranges. The rate for sheep and goats on each forest will be 25 per cent of the rate for cattle. The rate for horses will be 25 per cent more than for cattle and the rate for swine 25 per cent less. The proportionate charge for grazing during only a part of each year will be in accordance with the provisions of the national forest regulations."

War Delayed Action.

The original plan was to advance grazing fees 33⅓ per cent a year for three years, beginning in 1917; but on account of the disturbed conditions which confronted the stockmen that year the advance made was only 25 per cent; while a year later the emergency situation created by the war led Secretary Houston to suspend temporarily the further carrying out of the plan.

"I am not unmindful of the difficulties which still exist," he says, "but under the circumstances it seems unwise to defer action further on this important problem."

Regarding the authorization of five-year permits, Secretary Houston, after noting the fact that the stockmen have from time to time urged the issuance of such permits, not subject to reduction except for violation of their terms or to stop damage to the forest or range, as a

means of stabilizing the live-stock industry, goes on to say:

"On several of the forests applications have already been approved for permits during a five-year period subject to an annual reduction of 5 per cent to provide for the issuance of permits to new settlers, in addition to such reduction as might be necessary to prevent damage to the forest.

"It appears that while the stockmen are ready to subject themselves to whatever restrictions are necessary for the welfare of the forest from the standpoint of timber production or other primary purposes for which the land was set aside, yet the possibility of the 5 per cent annual reduction proves an embarrassment to them. It is appreciated that the assurance of continued use of the range for a specific number of animals during a term of years would undoubtedly tend to greater stability of the industry and encourage the handling of business in a way to increase the quantity and improve the quality of the live stock and would also enable a better administration of the range itself.

Other Factors Considered.

"On a considerable portion of the National Forests we have reached the point where permits for a period of five years can be put into effect without difficulty. On certain other forests we are not in a position to grant five-year permits for more than a portion of the stock at present upon them, because there is serious question whether there is not now more stock than can be carried permanently without injury to the forest. There is also the extra stock which has been taken care of as a war emergency, some of which we will not be able to continue, and for that reason should not be included under five-year permits.

"The issuance of annual permits will be continued where reductions are necessary to insure against overstocking or where this may be required for any other reason. The plan is progressively to bring about a more secure tenure of the grazing privileges through the issuance of five-year permits as fast as this can be done in consideration of the various public interests involved."

The Irish potato is the most important vegetable in the northern portion of the United States and is stored in large quantities for winter use. It may be kept in the storage room in the basement, in outdoor storage cellars, and in banks or pits. When stored in cellars, the potatoes may be put into barrels, boxes, baskets, crates, bins, or on the floor, but must be protected from the light.

DEMAND FOR DROUGHT LOANS FOUND LESS THAN EXPECTED

Department Officials Praise Spirit of Farmers in Affected Regions

Surplus to Be Expended for Spring Planting of Wheat—Statement of Requests Approved Is Given by States

Officials of the Department of Agriculture handling the loans to farmers in drought-stricken sections of the West from the President's $5,000,000 special fund, found not only that the spirit of the farmers in question was exceptionally fine, but that the demands for assistance were smaller than had been anticipated. As soon as it was seen that there would be a considerable unexpended balance from the fall planting activities announcement was made that it would be expended for the spring planting of wheat. This is told in the annual report of the Secretary of Agriculture.

"It appears," says the Secretary, "from a survey of the situation, that the remainder of the fund will take care of the urgent cases."

Since the cost of seeding spring wheat is greater than that for the fall it was indicated that the loans would be made on the basis of $5 an acre, with a limitation of 100 acres.

Tiding Over Was Object.

The primary object of the $5,000,000 fund, which was placed at the disposal of the Treasury Department and the Department of Agriculture by the President at the suggestion of the Secretary of Agriculture, was not to stimulate the planting of an increased fall acreage of wheat in the severely effected drought areas, or even necessarily to secure the planting of a normal acreage, but rather to assist in tiding the farmers over the period of stress, to enable them to remain on their farms, and to plant such acreage as might be deemed wise under all conditions, with a view to increase the food supply of the Nation and to add to the national security and defense. It was distinctly not intended to be used to stimulate the planting of wheat or any other grain where such planting is not wise from an agricultural view and where other crops or activities are safer.

Applications Approved.

Approximately 1,835 applications were approved in the Northwest district (including the western portion of North Dakota and portions of Montana, Idaho, and Washington) for a total of $371,198; and 8,806 in the Southwest (portions of western Kansas, Oklahoma, Texas, and eastern New Mexico) for $2,025,262. The total of 10,641 applications involved $2,396,460. The number and amount for each State are:

State.	Number.	Amount.
Montana	1,480	$300,919
North Dakota	338	65,944
Washington	17	4,335
Texas	1,336	292,651
Kansas	3,531	943,147
Oklahoma	3,852	773,271
New Mexico	87	16,193
Total	10,641	2,396,460

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended December 14, 1918:

The Manufacture of Neufchatel and Cream Cheese in the Factory, Department Bulletin No. 669.

Smyrna Fig Culture (revised edition), Department Bulletin No. 732.

Labor Requirements and Cost of Growing Sugar Beets in the Billings Region of Montana, Department Bulletin No. 735.

Culture and Uses of Okra (revised edition), Farmers' Bulletin No. 232.

Killing Hogs and Curing Pork (revised), Farmers' Bulletin No. 913.

Water Systems for Farm Homes, Farmers' Bulletin No. 941.

The Spotted Garden Slug, Farmers' Bulletin No. 959.

The Spinose Ear Tick, Farmers' Bulletin No. 980.

Remarks of D. F. Houston, Secretary of Agriculture, at conference of editors of agricultural journals, pamphlet, Secretarys' office.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

COOPERATE IN FEDERAL AID ROAD ACT

Legislative assent, required by the Federal aid road act, has now been given by the legislatures of all States except Alabama. The Alabama Legislature meets only quadrennially, and its next regular session will convene in January, 1919, at which time it is expected the necessary legislative assent will be given, according to the annual report of the Bureau of Public Roads of the United States Department of Agriculture. The governor of Alabama has assented on behalf of the State, as authorized by the act, so that cooperation by the State has not been affected adversely.

How Highway Building Awaited Peace; Steps Taken to Save for War Needs

Although $14,550,000 was available for expenditure on the post roads from the Federal aid road act, only $425,445 was paid from Federal funds in the highway construction season of 1918 on all projects. The reason for this, according to the annual report of the Secretary of Agriculture, was the steps taken to conserve money, labor, transportation, and materials in highway work during the war, and at the same time to facilitate really essential highway projects.

In connection with the Federal aid road work a letter was addressed to each State highway department asking that a program of Federal aid construction be submitted at the earliest possible date, in which would be included only those projects which the State highway departments considered vitally necessary to the transportation facilities of the country.

Report on Bond Issues.

At the request of the Capital Issues Committee, engineers of the department were made available for inspecting and reporting upon proposed highway and irrigation and drainage bond issues. Inspections were made of 181 separate projects, involving total bond issues of $86,912,396. An arrangement was made with the Fuel Administration whereby highways of special importance should receive enough bituminous material to provide for adequate maintenance, and where necessary, to permit construction and reconstruction. From May 13, 1918, when the cooperation became actively effective, until the close of the fiscal year, 2,235 applications, calling for 75,000,000 gallons of bituminous material, were received from States, counties, and municipalities. Of this amount approval was given and permits were issued for 58,000,000 gallons.

Highways Council Formed.

In order to coordinate the activities of various Government agencies, so far as they relate to highways; better to conserve materials, transportation, money and labor; to eliminate delays and uncertainties, and to provide positive assistance in carrying on vitally effective highway work, the Secretary requested each of the Government departments and administrations interested to name a representative to serve on a council to deal with highway projects during the period of the war. As a result, the United States Highways Council, consisting of a representative from the Department of Agriculture, the War Department, the Railroad Administration, the War Industries Board, and the Fuel Administration was formed in June. During the first four months of its existence the council passed upon about 5,000 applications, involving nearly 4,000,000 barrels of cement, 3,250,000 tons of stone, 1,140,000 tons of gravel, 1,207,000 tons of sand, over 77,000,000 brick, and nearly 20,000,000 pounds of steel, and 140,000,000 gallons of bituminous materials.

LOGAN BLACKBERRY FAVORED.

The Logan blackberry, or Loganberry, formerly thought to be a hybrid between a blackberry and a red raspberry, is now considered a variety of the Pacific Coast species of trailing blackberry, according to Farmers' Bulletin 998, recently published by the United States Department of Agriculture. Because of the different uses to which the Logan blackberry is adapted, its culture has rapidly assumed importance in California, Oregon, and Washington. Large quantities are marketed in the fresh state and they are used extensively in the production of a nonalcoholic beverage, in making jams and jellies, and in the canning industry. Their culture, as well as the culture of related varieties, are discussed in the bulletin.

BUY WAR SAVINGS STAMPS.

EXTENDS PROSECUTION OF FRAUDS IN INSECTICIDES AND FUNGICIDES

Greater food production having stimulated the manufacture of many new insecticide and fungicide preparations, the Insecticide and Fungicide Board, United States Department of Agriculture, has been increasing its efforts to protect the farmer, fruit grower, market gardener, and stock and poultry raiser against fraud in connection with such preparations.

The record for the fiscal year ending June 30 last shows that 132 cases of alleged violations of interstate law were reported to the solicitor of the department, with recommendations that the facts be transmitted to the Attorney General to institute criminal action or seizure proceedings. By correspondence with the manufacturer 195 cases involving technical or nonflagrant violations were disposed of. Also action was taken by the board to place in abeyance 726 samples of insecticides and fungicides which, upon examination and test, were found not adulterated or misbranded or were from shipments of the same goods made prior to shipments for which the manufacturer had been convicted, the manufacturer after citation conforming to the requirements of the law.

On June 30, 1918, 55 cases were awaiting preliminary hearings or before the board for final action, 217 were held in temporary abeyance pending the receipt of further information, the outcome of prosecutions based on the same product or correspondence with the manufacturers, and 325 samples were undergoing analysis and test. The inspectors and sample collectors of the board, operating throughout the United States, collected 748 samples during the year.

Cleaning Is Necessary to Keep Dug Wells Safe from Disease and Dirt

If properly located, built, and protected, dug wells are more likely to be permanently satisfactory than any other kind, but to insure the safety of the water supply they require cleaning occasionally, says Farmers' Bulletin 941, "Water Systems for Farm Homes," recently published by the United States Department of Agriculture. Even in protected wells dust and other foreign matter, which may pollute the water, are likely to gain entrance at the top, and the washing in of clay and silt with the ground water may make the supply unwholesome.

The first step in cleaning a well should be inspection of the curb, which, if weak or defective, may make entrance dangerous. This examination may be made more thoroughly, and even the bottom of the well may be observed by the aid of a beam of sunlight reflected into the well by a looking glass. Next, lower a lighted candle to determine if carbonic-acid gas has accumulated in the bottom of the well. Complete or partial failure of the candle to burn indicates that it is dangerous to enter the well. If found safe to enter, a ladder should be lowered and the curb from top down scrubbed with wire or other stiff brushes and rinsed thoroughly. The well then should be pumped as low as possible, and any mud, moss, or other débris should be scraped up into pails and removed. After thorough cleaning, the well should be allowed to fill and then be pumped out rapidly. This operation may be repeated to advantage two or three times, and often the whole work results in a

freer, larger-yielding well. Many wells can be drained by hand pumping, but in other cases a power pump is necessary.

Unless there are special reason for so doing, there is little use in attempting to disinfect wells with chemicals. The volume of water receiving the chemical solution can not be known definitely, and the results are neither certain nor permanent.

Large Cabbage and Onion Crops in North; Hint to Southern Growers

Because cabbage and Bermuda onion crops were large in the principal growing districts in the Northern States this year, specialists of the United States Department of Agriculture suggest that southern planters take into consideration the present supplies in determining the acreage they plant in these crops.

The cabbage crop in the nine Northern States in which late summer cabbage is extensively grown is reported to be the largest since 1915. In New York and Wisconsin, two States which store cabbage on an extensive scale, the crop is estimated to exceed that of last year (1917) by 22 per cent, an estimated increase of approximately 70,000 tons. If the quantity of stored cabbage is in direct proportion to the magnitude of the crop, the specialists say, it is likely to be more abundant during the spring of 1919 than it was during 1918.

Recent estimates of the 1918 northern-grown onion crop indicate that there are now available in the 14 principal producing States 1,130,000 bushels, or 9 per cent more than in the autumn of 1917. With this increased production the supply carried over winter and marketed during the spring of 1919 may be abundant. Southern growers of cabbage and onions for spring harvesting should take these facts into consideration in planning their acreage.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for veterinarian, for men only, on January 22 and February 19, 1919, to fill vacancies in the Bureau of Animal Industry, Department of Agriculture, at the entrance salary of $1,500 a year.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

BUY WAR SAVINGS STAMPS.

Much Land Is Vacant, Says Secretary; Demand Governs Number of Farmers

Discussing the problem of land settlement, the Secretary of Agriculture in his annual report says that with wise foresight and increased employment of scientific practice, under the stimulation of intelligent agencies, America can take care of and provide for a very much larger population under even more favorable circumstances and in greater prosperity.

"Interest in land for homes and farms increases in the Nation as the population grows. It has become more marked as the area of public land suitable and available for agriculture has diminished," says the Secretary. "It is intensified at the present time by reason of the suggestion and desire that returned soldiers and others who may wish to secure farms shall have an opportunity to do so under suitable conditions. It finds expression, too, in discussions of the number of tenant farmers and in its meaning and significance.

Still Room for Many.

"That there is still room in the Nation for many more people on farms is clear. The United States proper contains about 1,900,000,000 acres of land, of which an area of 1,140,000,000 acres, or 60 per cent, is tillable. Approximately 367,000,000 acres, or 32 per cent, of this was planted in crops in 1918. In other words, for every 100 acres now tilled 300 acres may be utilized when the country is fully settled. Of course, much of the best land, especially that most easily brought under cultivation and in reasonably easy reach of large consuming centers, is in use, though much of it, possibly 85 per cent, is not yielding full returns. Extension of the farmed area will consequently be made with greater expense for clearing, preparation, drainage, and irrigation, and for profitable operation will involve marketing arrangements of a high degree of perfection and the discriminating selection of crops having a relatively high unit value.

Two Ways Pointed Out.

"Increased production can therefore be secured in two ways, namely, through the use of more land and through the adoption of improved processes of cultivation of all land and of marketing. The latter involves the general application of the best methods used by the most skillful farmers and urged by experienced, practical, and scientific experts. It will necessitate seed selection and improvement, plant and animal breeding, soil development through rotation, the discriminating use of fertilizers, the control and eradication of plant and animal diseases, good business practice and thrift, and many other things. It means that farming must be profitable and that society must be willing to pay the price. Under no other conditions can farming expand. It means, too, that only as many will or need stay on farms as may be necessary to supply what the consumers will take at prices which will justify production. Many people speak as if they thought there should be no limit to the number engaged in agriculture or to production of crops. The farmer must consider his balance just as much as any other business man. The number of individuals remaining in the farming industry will, in the long run, continue to adjust itself roughly to the economic demand and will increase as it expands or as relative economies are effected."

INFORMATION FOR FRUIT GROWERS.

Complete surveys of practically every important apple and peach producing county in the United States were made by the Bureau of Crop Estimates, United States Department of Agriculture, during the fiscal year 1918.

The fruit crop estimating service now is issuing reports giving reliable forecasts of the amounts of different fruits which may be expected to reach commercial channels. Cooperative relations have been established with leading growers and shipping associations in all parts of the country for the purpose of collecting and disseminating this information, which is of vital importance to producers and consumers of commercial fruits.

Detailed estimates by States and regions, together with complete comments upon the growing conditions in all parts of the country, are included in the apple and peach forecasts of this bureau. These forecasts are issued monthly, and it is planned to extend this service to include other fruits.

Other features being satisfactory, a farm is well located that has a stream or lake or pond from which a supply of good, clear, clean ice may be harvested and the farmer is doubly fortunate if there is an icehouse at hand ready to receive it.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Helps Reduce Insecticide Prices.

Chemical advice has been given by the United States Department of Agriculture to the Food Administration, and much valuable data have been supplied to it relative to manufacturers engaged in making certain types of insecticides and the importance or nonimportance of various insecticidal materials. A representative of the Insecticide and Fungicide Board has attended several conferences between the Food Administration and manufacturers and has been able to supply data of value. As a result of the activities of the Food Administration, assisted by the Department, the price of arsenic asked by the producer has been reduced from 12 to 16 cents to 9 cents for carload lots and 9½ cents for shipments less than a carload. This presumably will lead to a reduction in the price of Paris green, lead arsenate, and other arsenical insecticides to the consumer.

Good Food for Soldiers and Sailors.

At the request of the Secretary of War and the Secretary of the Navy the Department of Agriculture has participated in protecting American military and naval forces against unwholesome food, says the Secretary of Agriculture in his annual report. The Federal meat inspection, which for years has safeguarded the civil population of the United States from bad meat in interstate commerce, was extended to include the special supervision of the meat supply of the American Army and Navy. The examination, selection, and handling of meats and fats are in expert hands from the time the live animals are driven to slaughter until the finished product is delivered in good condition to the mess cooks. Inspectors were assigned to the various cantonments, training camps, forts, posts, and other places in the United States where large numbers of troops are assembled, and at the close of the fiscal year there were 69 such experts with the Army and 30 with the Navy.

Canners Endow Hospital Beds.

From proceeds derived chiefly from the sale of canned and dried fruits, farm women's clubs in West Virginia have contributed $2,100 for the endowment of hospital beds for wounded soldiers in France. During the past summer they canned for this purpose 20,000 quarts from materials formerly allowed to waste. Nineteen of the thirty-one counties—more returns to follow—have put away for winter use 1,500,000 quarts. Farm women's clubs in this State also have taken the lead in the use of substitutes, thereby releasing a very considerable amount of food.

India Cans by Uncle Sam's Methods.

Even on "India's coral strand" they are canning, and doing it by the directions put out by the United States Department of Agriculture. The missionaries there have been the instigators of the movement. Hundreds of men and women have visited the exhibits of the products canned.

Fewer Violations of Insecticide Law.

Material reduction in the number of violations of the law in respect to certain spray materials, due largely to the activity of the Insecticide and Fungicide Board, has been noted since the law went into effect placing upon the United States Department of Agriculture the responsibility of regulating interstate shipments and importations into the United States of insecticides and fungicides, and also the manufacture and sale of such products in the Territories and the District of Columbia. In 1911–12 the percentage of violations in respect of lead arsenate, paste and dry, was 60; in 1917 this percentage had dropped to 10. From 28 to 12 is the record in Paris green during the same period. In 1911–12, 94 was the percentage for lime sulphur, solution and dry, while in 1917 it was 40. The violations in Bordeaux mixture and Bordeaux mixture combined with insecticides were 98 per cent for 1911–12 and 28 for 1917.

ECONOMIC IMPORTANCE OF ICE.

An ample supply of ice is of greater economic importance in the country home than in the city home. City people can purchase perishable supplies as needed, but the remoteness of country homes from markets often renders it necessary to use canned, corned, or smoked meat products during the season of the year when the table should be supplied with fresh meats. Not only is ice appreciated because of its use in the preservation of fresh meat, butter, and other table supplies, but the production of high-grade domestic dairy products is almost impossible without it. Many markets to which milk is now shipped demand that it be cooled before shipment to a degree not attainable without the use of ice. Get the ice house ready for the winter harvest.

Predatory Animal Association Formed.

The county agent of Natrona County, Wyo., has organized the ranchers of his county into a Predatory Animal Association to cooperate with the Biological Survey of the United States Department of Agriculture in the control and eradication of coyotes, wolves, and bobcats. A fund of between $6,000 and $8,000 to carry on this work will be secured through a tax of 2 cents a head on all cattle and sheep in the county. The campaign will be under the supervision of the Biological Survey.

Farm Bureaus Relieve Hay Shortage.

A hay shortage in the Cascade Mountains, which seriously threatened the dairy industry in Washington, has been tided over by the county agents of the State working through their farm bureaus. Committees of the farm bureaus in regions where had was scarce went into neighboring localities where it was more plentiful and did the actual buying. In this way the county agents of several counties assisted the farmers to purchase as high as 1,500 tons, and through cooperative buying were able to save the purchaser an average of $4.25 a ton. A large part of the hay was shipped from Yakima, Benton, Kittitas, and Walla Walla Counties.

County Agent Organizes Breeders.

Through the efforts of the county agent in Rush County, Ind., the Shorthorn breeders of three neighboring counties have recently formed an association. A veteran Indiana Shorthorn breeder asked the county agent why the breeders of that county could not organize and cooperate with other breeders in the locality. At this suggestion the county agent invited the agents in two other counties to a conference at which it was

decided that it would be of advantage for the three counties to unite in an organization. Accordingly a meeting was called immediately after a Shorthorn sale, and the Knightstown District Shorthorn Breeders' Association, with 25 members, was started. The breeders, through their association, will be better able to attract buyers who would not have heard of them as individuals, to supply stock in carloads, to hold combination sales, to command better prices, to exchange sires, and to advertise more advantageously.

Weather Warnings Save Sheep.

Live-stock warnings from the Weather Bureau, Department of Agriculture, issued for the benefit of the cattle and sheep interests have been reported as of great value, particularly during the lambing and shearing seasons. One of these warnings issued in April, 1918, from the San Francisco forecast district center resulted in the protection of over 100,000 newborn lambs and in the postponement of the shearing of great numbers of sheep.

Wholesalers Buy Clubs' Canned Products.

Ten community canning centers are the excellent start the boys' and girls' clubs have made in Spokane County, Wash., under the direction of the Department of Agriculture and the State agricultural college. These have been operated all summer by the boys and girls with the greatest of enthusiasm. Some of the women in the county also are using the centers. The wholesalers have agreed to buy all the products of the Spokane County centers which come up to the standards set by the State and county club leaders.

Cheaper Feed by Cooperative Buying.

The farmers of Clatsop County, Oreg., were saved $4 a ton on mill feed through the combining of orders by the county agent. By making one order for 300 tons of feed the agent was able to obtain a price of $33 a ton from the local dealers. The retail price for mill feed in the region has been $37 a ton, and often more.

Raised Vegetables For Lunch Room.

Vegetables canned from the gardens cared for by the school children will be a feature of the school lunch rooms in Wyandotte County, Kans., this winter. The vegetables were put up by volunteer helpers under the direction of the home demonstration agent of the Department of Agriculture and the State agricultural college. At the school cannery 1,000 bushels of tomatoes, among other vegetables, were canned.

Putting Pest Damage to Profit.

Everyone who has a garden detests a mole—everyone, perhaps, but a certain woman gardener out in Bryan County, Okla. This ingenious person, who reported her experience to the United States Department of Agriculture, puts them to work. A number of these pests undermined her garden this season, digging diminutive tunnels here, there, and everywhere. It would have discouraged the average woman; it didn't feeze this one. She started a little irrigation plant of her own, using its tunnels as irrigation ditches. She filled the tunnels with water repeatedly until the garden was well watered, and finally drove the moles off the premises.

Indian Girls Interested in Canning.

Oklahoma Indian girls are as much interested in the canning campaign as their paleface sisters. In Beckham County, Okla., they attend all the meetings held by the home demonstration agent, and this year made an excellent booth exhibit of the fruit and vegetables they had canned and dried. One Indian woman also exhibited 100 chickens of her own raising.

Local Market-Reporting Service Growing.

The local market-reporting service of the Bureau of Markets, covering an entirely new field and regarded as a necessary supplement to the national telegraphic news services of the United States Department of Agriculture, is expanding according to the annual report of the Secretary of Agriculture. The first experiment was made in Providence, R. I., about 18 months ago and was so successful that when emergency funds became available the work was broadened, and in cooperation with local authorities agents were placed in 15 additional States. This service consists largely of reports on local market conditions and prices, based on local observations, and is conducted primarily for the benefit of growers and consumers, though it has proved useful to dealers as well. Consumers' figures are made public through local newspapers and have been helpful to housewives.

Cuts Cost of Wheat Transporting.

By utilizing a logging railroad to transport wheat the county agent of Wallowa County, Oreg., brought about a saving of between $8,000 and $9,000 to the farmers in one section of the county. The agent brought to the attention of the State public service commission the fact that the logging railroad, by handling the wheat, could save farmers a considerable part of the trouble and expense of a 40-mile haul to a railroad station. Upon the recommendation of the commission the logging railway hauled 90,000 bushels of wheat, which was moved at about one-half the cost of hauling in the usual way.

Weather Bureau Gives Fire Warnings.

Warnings of weather conditions favorable to forest fires, issued by the Weather Bureau of the United States Department of Agriculture, have been extended to include other fire-hazard conditions likely to result in damage or loss in connection with crops, stock, other foodstuffs, and all kinds of inflammable war material. A number of these warnings were issued during the year with beneficial results. A special station has been established at Hampton, Oreg., for carrying on investigations in connection with this service.

Poultry Chilling Room Benefits Small Packers; Prevents Losses

The chill room developed by the United States Department of Agriculture for the preservation of poultry and eggs and to prepare them for transportation to market has proved of great advantage to small poultry packers, according to reports reaching the department. Packers who have had to ship in less than carload quantities have found that wet-packed poultry has spoiled in enormous quantities because of slow transportation resulting from war congestion on the railroads. Packers equipped with the small chill room recommended by the department have found that poultry dry chilled and properly packed arrived at its destination in good condition, while wet-packed goods in the same car was in bad order. It has been found also that the method recommended by the Government requires less ice than the ice-packing process.

Simple, clean, wholesome food of the right kind, fed to children in proper quantities and combinations will go farther than almost any other single factor in assuring them normal health and sturdy development. Consult Farmers' Bulletin 717.

Home Butchering Reduces Meat Bills; Bulletin Describes Tested Methods

Tried and satisfactory methods of curing pork on the farm, as well as detailed instructions on hog killing, are given in Farmers' Bulletin 913, "Killing Hogs and Curing Pork," which has recently been revised by the United States Department of Agriculture. Choice hams and breakfast bacon can be produced by the farmer for much less than the cost of purchased meat, says the bulletin, and home-cured pork of the right kind always has a ready market. In some cases it will prove the best way to market hogs.

Brine Cure for Hams, Shoulders and Bacon.

The bulletin gives the following methods of curing hams, shoulders, and bacon. They have been thoroughly tried and proved satisfactory.

For a good brine pickle, use for each 100 pounds of meat 5 gallons boiled water, 10 pounds of salt, 2 ounces of saltpeter, and 3 pounds of sugar. Slowly dissolve all ingredients in warm water and allow to cool. Sprinkle a little salt over the bottom of the container, then place the meat in it very snugly, put a board or earthen cover on meat, weighting it with something that will not rust (use stones; don't use iron), then pour the brine in.

Leave the meat in the brine 4 days to each pound, that is, 40 days for a 10-pound ham. Every week take all the meat out of the barrel, then the brine. Place the meat back with that on the top which was on the bottom, then put the brine back. When the meat has been long enough in the pickle, take the meat out of the brine and soak it in water for an hour, then wash it in warm water and hang it in the smokehouse over not too hot a fire (120° temperature in room) until the required color is obtained; 48 to 60 hours is usually adequate.

Watch the pickle and if it becomes ropy take out all the meat and wash it in warm water. Boil the pickle or make new, wash the container, and put the meat and brine back.

Dry Cure for Hams, Shoulders, and Bacon.

A very good cure for meat has been used for years in Maryland and Virginia.

Meat cured with this formula has been found palatable and sweet after several years.

To each 100 pounds of meat, use 8 pounds of salt, 3 pounds of warm sirup (any good sirup can be used, or home-made sugar sirup may be substituted), 2 ounces of saltpeter, 3 ounces black pepper, and 2 ounces of red pepper.

All the above ingredients should be mixed together throughly. It will first lump up and darken. When the lumps are smoothed out, the ingredients are ready to rub in the meat and should make a coating over it. The sirup causes it to stick.

The meat can be put into a barrel or box or piled on the floor or table, which should be clean. There will be a drainage which is better taken care of in a barrel or tight box.

Leave the meat 6 weeks in the cure and the extra heavy pieces a week longer. If any pieces are to be smoked, take them out of the pile and hang in the smokehouse, without washing, and smoke until of the required color. Be careful not to have the smokehouse too hot, not over 120°.

Pure Pork Sausage.

A good formula for pure pork sausage, which has been tried and has given very good satisfaction, is as follows:

To each 100 pounds of meat, preferably 60 to 65 per cent lean and 35 to 40 per cent fat, ground through the finest plate, use 1½ pounds of salt, 4 ounces of black pepper, 2 ounces of sage, and 1 ounce of nutmeg. Mix all together well, sprinkle over the meat, and mix thoroughly.

If the sausage is to be kept for several months, it should have 2 pounds of salt instead of 1½ pounds. It should also be stuffed in casings or packed in jars and covered with lard. For convenience and to insure keeping it can be made into cakes, fried, packed in containers, and covered with lard.

WHEAT PRICE FOR 1919 STANDS.

The guaranteed price of wheat for the 1919 crop stands, by the terms of the Lever Act, under which the United States Food Administration is operating. This statement was made by the Food Administration December 4.

The President's proclamation of September 2, 1918, stated that the "producers of wheat produced within the United States . . . for the crop of 1919" are guaranteed the prices therein set forth, $2.26 per bushel at Chicago, and the end of the war or the proclamation of peace does not in any way affect this guaranty.

Section 24 of the Lever Act provides "That the provisions of this act shall cease to be in effect when the existing state of war between the United States and Germany shall have terminated, and the fact and date of such termination shall be ascertained and proclaimed by the President; but the termination of this act shall not affect any act done, or any right or obligation accruing or accrued," etc. It further states that "All rights or liabilities under this act arising before its termination shall continue and may be enforced in the same manner as if the act had not terminated."

The guaranty for the 1919 wheat crop expires June 1, 1920.

GIVES REMEDIES TO DESTROY SLUGS; CLEANING UP REFUGES RECOMMENDED

Bait poisoned with arsenic, clean culture in garden and greenhouse, and the use of lime and powders, such as finely powdered salt and road dust, are recommended as means of destroying the spotted garden slug and other injurious garden slugs, in Farmers' Bulletin 959, by Lieut. William H. White, United States Army, recently published by the United States Department of Agriculture.

The spotted garden slug, which frequently becomes a menace to gardeners and mushroom growers, is somewhat worm-like in appearance, ranges in length from one-half inch to nearly 7 inches, and varies in color from a yellowish gray, or brown, mottled with black, to nearly black. It thrives in damp, dark locations, such as under old decaying boards and logs, in cellars and creameries, along hedgerows, and beneath damp refuse. It is particularly fond of lettuce, tomatoes, peas, beans, and other vegetables when grown either under glass or in the open, and frequently causes damage in mushroom beds, to celery during the bleaching process, and to vegetables, especially potatoes in storage. It remains under cover until nightfall, when it comes out to feed, and returns to the same place before morning, leaving a trail of sticky mucus.

The common toad is among the slug's few natural enemies, according to the bulletin. Owing to its habits of feeding by night and concealing itself during the day, the slug is very difficult to control. Spraying with arsenicals is impractical, because slugs avoid most poisoned substances. Boiled or baked potatoes sprinkled with white arsenic have been found effective as a poisoned bait. In mushroom houses the most effective remedy is to surround the beds with a border about 2 inches wide, using lime, salt, or road dust, which prevents the slugs from passing. Cleaning up the hiding places of the slug and sprinkling lime, which is the standard remedy for slugs, about infested areas is the best treatment in gardens and greenhouses.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — DECEMBER 25, 1918 — No. 21

URGES FARMERS TO HELP IN DEVELOPING FOREIGN TRADE

U. S. Shipping Board Asks Teamwork in Building New Markets

New Merchant Marine to Send Hundreds of Ships on New Routes—Study of World Conditions Advised for Food Producers

THE WEEKLY NEWS LETTER is glad to give space to this contribution from the United States Shipping Board on the development of farm markets in other lands. Other articles on this subject, presenting the views of the Shipping Board, will published from time to time.

A ship from Australia touched at New York recently on her way to the British Army in France. She carried 3,000 tons of jam made from Australian oranges, berries, and cane sugar. This cargo promises to be the first in a steady trade between Australia and England, giving farmers in that far British colony a new solution of their difficult marketing problems.

Many other farm marketing problems in the United States and elsewhere are difficult puzzles until one applies to them the new key brought by war—the merchant ship. Then agricultural communities like our great fruit raising, dairying, and live-stock sections find new outlets, not only for present products, but improved and concentrated products which give the best profit and the best balanced agriculture. Even a country so far from big consuming countries as Australia, through the merchant ship and world trade, is able to develop intensive industries like deciduous fruit, grapes, raisins, and dried fruit.

Must Fill Their Holds.

Chairman Hurley, of the United States Shipping Board, is devoting attention to farm markets abroad in connection with the new American merchant marine. We shall presently be turning out merchant ships ready for sea service at the rate of more than 500,000 tons monthly. By this time next year hundreds of these ships will be running on new trade routes between the United States and Latin America, Europe, the Orient, and elsewhere. Ships alone can not create world trade—there must be teamwork between ships, banks, investors, manufacturers, and farmers. It is essential that our farmers give serious thought to the American merchant marine now, while it is in process of development. There are two general lines of interest.

First, merchant ships can be studied as transportation. Every farmer knows that transportation in the form of railroads gives him access to markets; that without railroads farming in many sections would be impossible. The American merchant marine simply extends our railroads over the trade routes of the world, giving farmers access to vast new markets for every product of the soil.

Study Foreign Trade.

Second, merchant ships can be studied from the community standpoint. Local farmers' organizations now can begin investigating local products in the light of world trade, ascertaining what the community produces that can be shipped abroad, and where possible world markets are to be found, and how connections can be made therewith. The Government is already investigating world markets through such agencies as the Department of Agriculture (Bureau of Markets), the Department of Commerce (Bureau of Foreign and Domestic Commerce), the Consular Service (Department of State), the United States Shipping Board, the War Trade Board, etc. These agencies can find out what farm products other countries want, and at what seasons, and in what form. They can supply information about world markets to the American farmer. But details as to what each farming community in the United States can produce for export must be ascertained largely by our farmers themselves. Earnest attention to the new American merchant marine as it bears upon American farming to-day is not only a service to farming, but a service to the Nation.

STRAW OVER WINTER WHEAT MAY PREVENT WINTERKILLING

It Should Be Spread Thin and Evenly Before Severe Weather

Disastrous Losses Recently Direct Attention to Subject—Straw Acts Also as Fertilizer, Value Equal to Barnyard Manure

Straw spread thin and evenly over winter wheat before severe cold weather and at the rate of 1 to 1½ tons to the acre may prevent winterkilling. In severe winters the straw may help to carry the crop through safely and prevent complete failure, say specialists of the United States Department of Agriculture; but if the season is favorable the straw has no effect on the crop except through the addition of mineral and organic matter it contains. The unusual importance of wheat and the disastrous winter of 1916–17, when about one-third of the winter-wheat acreage of the country was winterkilled, have all stimulated interest in this subject.

There is always some winterkilling of wheat, the average for the last 10 years being about 11.9 per cent of the crop.

HOW STRAW PROTECTS.

BY applying straw to wheat as a top-dressing, winterkilling is reduced probably in the following ways: The straw catches and holds snow, prevents soil-blowing to some extent, and reduces the losses from freezing and heaving of the ground, which uproots the plants. Straw can be applied with a fork or by means of a spreader especially designed for the purpose. The principal thing to consider is that the distribution be made evenly and not so thick that it smothers the plants. It is best to spread it soon after sowing, so that the plants will grow up through it and hold it in place. Aside from this, much later spreading is as effective, but is more likely to be hindered by freezing of the straw and by unfavorable weather.

Agriculture's Big Job in 1919 Will Be Easier if Farmers Are Organized

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Some years the losses amounted to less than 3 per cent of the acreage sown, but in other years it is very high, as in the winter of 1916–17, when it amounted to 31 per cent. As it is impossible to foretell a severe winter, it is best to apply straw, if it is not needed for feeding or bedding, and thus be prepared. Whether needed or not to protect the wheat, the straw will be of value by adding fertilizing material, as a ton of straw is about equal to 1 ton of barnyard manure for the plant food contained. To be of greater value to the wheat crop the straw should be fed or used as bedding for stock, and the manure thus made used as a top-dressing on wheat.

Health Depends on Keeping Farm Water Supply Free from Pollution

Convenience and first cost—not sanitary safety—have been the deciding factors in locating thousands of farm wells, according to Farmers' Bulletin 941, "Water Systems for Farm Homes," recently published by the United States Department of Agriculture, and on the average three out of four wells are within 75 feet of the back door of the house and in the direction of the barn.

Close proximity to barnyards, pigpens, sink drains, out buildings, and other sources of pollution seriously impairs the water supply, makes it unsafe and destructive to health, the bulletin adds. Typhoid fever, tuberculosis, hookworm disease, cholera, dysentery, and diarrhea are among the ailments caused or influenced by contaminated water, and maladies such as hog cholera, anthrax, and foot-and-mouth disease of live stock have been traced to water which carries the germs of infection.

Wells can not be located in all cases so that there may not be some pollution, the bulletin says, but the great safeguards are clean ground and as wide separation as possible from the probable channels of any impure drainage. It is not enough that a well or spring be 50, 100, or 150 feet from a source of filth or merely upon higher ground, although even moderate remoteness and elevation of the source of supply are desirable. Given porous or gravelly ground, seamy ledge, or long-continued pollution of one plot of land, the zone of contamination is likely to extend long distances, particularly in downhill directions, and at such times as water supplies are lowered by drought or heavy pumping. Only when the surface of the water in a well or spring is actually at a higher level at all times than any near-by source of filth is there positive assurance of safety.

HELP IMPROVE SOIL AS PART OF FOOD PRODUCTION WORK

County Agents Stimulate Raising of More Legumes by Farmers

Use of Lime, Inoculation, and Drainage Demonstrated—Instructions Given on Fertilizer—Acid Conditions Overcome

In carrying out the increased food production campaign and working for immediate large returns, the United States Department of Agriculture did not overlook the importance of maintaining soil fertility. With this in view the county agents gave considerable time in helping to stimulate the raising of more legumes for soil improvement as well as for forage and seed.

Efforts of the county agents in the 33 Northern and Western States last year resulted in the sowing of 77,755 additional acres of alfalfa, 26,990 acres of sweet clover, 66,854 acres of soy beans, 8,798 acres of cowpeas, and 10,097 acres of vetch.

Demonstrations Conducted.

A large number of demonstrations were conducted to show the importance of using lime, inoculation, and proper drainage, as well as to show the best methods of seeding and harvesting legumes. In many counties where sweet clover and soy beans had been grown but little, if at all, farmers were encouraged to try a small acreage, with such satisfactory results that these crops will be grown much more extensively. Nearly 100,000 acres of clover and other legumes were plowed under for soil improvement.

The county agents gave instruction on the economic use of such commercial fertilizers as were available. As a result of their work along this line 6,662 farmers are known to have reinforced manure with acid phosphate or ground-rock phosphate; 17,333 farmers used chemical fertilizers, and 2,680 farmers used home-mixed chemical fertilizers at the suggestion of or as recommended by agents.

Acid Soil Improved.

The agents tested soil for acidity on 11,163 farms, brought about the development of 301 local sources of marl or other forms of lime, and helped to have 64 limestone crushers introduced. These and other activities of the agents to encourage farmers to use lime to overcome soil acidity resulted in 186,873 additional tons of lime being used. In many instances where farmers could not grow alfalfa or clover successfully the application of 1 or 2 tons of lime per acre has overcome the soil acidity and resulted in a good stand, thereby increasing the yield of hay more than 100 per cent and even 200 per cent.

THE AMERICAN FARMERS' WAR RECORD.

Live Stock, Meats, Wool, and Milk.

Item.	Live stock on farms, Jan. 1—		
	1918	Per cent of 1914.	1914
	Number.		*Number.*
Horses	21,563,000	102.9	20,962,000
Mules	4,824,000	108.4	4,449,000
Milch cows	23,284,000	112.3	20,737,000
Other cattle	43,546,000	121.5	35,855,000
Sheep	48,900,000	98.4	49,719,000
Swine	71,374,000	121.1	58,933,000
Total	213,491,000	112.0	190,655,000

Item.	Production of meats, milk, and wool, calendar years, 1918 and 1914.		
	1918	Per cent of 1914.	1914
Beef[1] ... pounds	8,500,000,000	139.8	6,078,908,000
Pork[1] ... do	10,500,000,000	119.7	8,768,532,000
Mutton and goat[1] ... do	495,000,000	66.9	739,401,000
Total	19,495,000,000	125.1	15,586,841,000
Milk[2] ... gallons	8,429,000,000	112.3	7,507,000,000
Wool ... pounds	299,921,000	103.4	290,192,000

[1] Estimated, for 1914–1917, by the Bureau of Animal Industry. Figures for meat production for 1918 are tentative estimates based upon 1917 production and a comparison of slaughter under Federal inspection for nine months of 1918 with the corresponding nine months in 1917.
[2] Roughly estimated, for 1914–1918.

POULTRY SHIPPERS URGED TO GUARD AGAINST FOOD LOSSES

Proper Cooling Will Prevent Spoilage, Specialists Point Out

Heavy Railroad Traffic Demands Unusual Care. Early Packing and Chilling Among Recommendations from Department

To prevent a repetition this year of heavy spoilages of dressed poultry that have occurred in previous seasons because shippers did not precool properly before sending off their products, specialists of the Bureau of Chemistry, United States Department of Agriculture, urge greater care than ever before. They warn that with the strain of traffic on the railroads heavy losses of foodstuffs are likely unless measures are taken against them. Shippers should view the additional care necessary to prevent waste and decay as an insurance as well as a duty.

Here are some timely suggestions resulting from investigations by the Bureau of Chemistry in handling and transporting dressed poultry:

1. Be sure the chicken's crop is empty before killing. "Croppy" birds "green" easily.

Immediate Cooling Advised.

2. Begin the cooling just as soon as the feathers are off, whether it is done in iced water or in cold air. Don't let the birds pile up in the picking room waiting for a convenient moment to transfer to the chill room or the ice tank.

3. If you ice pack, quick cooling is very essential. The old idea that animal heat must come out slowly is all wrong. Quick cooling—the quicker the better—gives best results. In the first cooling-tanks, the birds should be left for 12 hours. Have the water inlet at the bottom of the tank and let the water flow constantly. If the water comes in from the top only, the birds in the upper part of the tank are cooled quickly, whereas those at the bottom are cooled so slowly that they are likely to become green-struck. After taking the birds out of the first tank, place them, backs up, in a layer over the bottom of the ice tank. Cover them completely with crushed ice, and continue this procedure until the tank is filled. Pack out just before shipping. Put a layer of crushed ice in the barrel and then a layer of poultry, and thus alternate layers of ice and poultry until the barrel is filled, allowing space for an ample header.

4. If you dry cool, and that's what you should be doing, because dry cooled poultry keeps better than water cooled, have your chill room between 28° and 35° F. It will take about 24 hours to bring the birds down to the temperature of the room. Poultry flesh will not freeze until below 28° F. If you take more than 24 hours to get the temperature down below 35°, you are losing some of the resistance to decay that every pound of shipped poultry is entitled to start out with.

5. Don't hold poultry for shipment one day longer than you must unless you have a quick freezer available. Undue holding is especially hard on wet cooled poultry. This should never be held more than two or three days before shipping. Dry cooled poultry can be held a week if the chill room temperatures never go much above 32° F.

Early Packing Saves.

6. As soon as the poultry is chilled pack it in boxes, kegs, or barrels. Don't let it stand for days waiting until you get the whole shipment. By doing so you will have an unnecessary amount of loss by shrinkage. The loss is almost nothing when the birds are tightly packed in good packages.

7. Don't put fresh killed poultry into the chill room with birds that are chilled until the latter are packed. It is better to have two chill rooms to be used alternately, or to keep one for a packing room. However, if you have but one chill room, boxed or barreled birds will suffer but little from incoming warm stock. Unpacked birds will often be so warmed that they lose quality.

8. Long holding is apt to result in a growth of mold unless the room is kept below 35° F. and unless it is very clean. It is a good plan to disinfect the chill room at the beginning of the season. This can be accomplished in the following manner: Brush and wipe the walls and ceiling to remove dust. Then disinfect by means of potassium permanganate and formaldehyde solution (formalin). For each 1,000 cubic feet use 12 ounces formaldehyde (40 per cent strength) and 6½ ounces potassium permanganate. Place permanganate in dish or large earthenware vessel and pour formaldehyde on *quickly* and depart *instantly*. The fumes are very irritating to eyes and throat. Use separate vessel for each 1,000 cubic feet. Close all openings and cracks in room. Leave room closed for at least 24 hours, then enter cautiously. Air thoroughly, using a fan. If the odor of formalin persists after room has been aired spray lightly with aqua ammonia.

LARGE AREA COVERED BY SOIL SURVEY.

Notwithstanding a certain amount of interruption due to war conditions in the work of the soil survey, carried on by the Bureau of Soils of the United States Department of Agriculture, a larger area of detailed mapping was done during the fiscal year 1918 than during the preceding year, the area covered amounting to 38,136 square miles. Prior to 1918 a total of 445,825 square miles had been mapped, so that the total area covered by the detailed work of the survey at the close of June 30, 1918, was 483,961 square miles. That part of the United States lying within regions where the rainfall is sufficient for crop production or where water is available for irrigation covers approximately 1,750,000 square miles. The area mapped in detail during 1918 was equivalent to 2.2 per cent of this area, the total mapped in detail to date 27.6 per cent, and the total, both detailed and reconnoissance work much of the latter area calling for no further work, amounted to 54.3 per cent of it.

There's a Difference When A County Has an Agent

There was no county agent in Rankin County, Miss., last year, and the farmers individually could not successfully market their produce. In fact, only one carload of potatoes was shipped out of Star during the season. Conditions at present are very different. Rankin now has a wideawake agent who believes in cooperative shipping, as is evident from this information received by the United States Department of Agriculture:

"This year our county agent organized a cooperative club and looked after the marketing of our produce. Also he gave us information as to treating seed and necessary fertilizer. This year our agent marketed 22 cars of potatoes cooperatively for us and secured the top market price. Some of the farmers in this community made over $100 per acre. This increase of 21 cars is due to the efforts of our agent, as we could not market our produce alone at a profit.

"Mr. Burk's information given on the proper use of fertilizer has been worth many dollars to me alone. We have secured over 100 bushels of seed wheat through our agent to be planted this fall."

Birds of prey, including eagles, hawks, and owls, may be included in the list of flesh-eating animals that on the whole are more useful than harmful, because their chief economic function is to destroy noxious rodents.

HOW FOREST SERVICE HELPED WIN WAR; LARGE NEW DUTIES

Chief Reports Changes in Work to Aid in Assuring Victory

Technical Knowledge Used in Supplying Forest Products for Military Needs—Investigations for Practically All Federal War Agencies

How the Forest Service met its war responsibilities is the main subject discussed by its chief, Henry S. Graves, in his annual report to Secretary Houston, just published. The war led, he asserts, to the temporary abandonment of many of the old lines of work, the curtailment of others, and the assumption of large new duties.

Because of the close relation of the national forests to the economic life of the country, and to the production of necessities never before so urgently required, "their continued administration along lines which would prevent the breakdown of any essential industry was an obvious duty." At the same time, the Forest Service was employing its technical knowledge and equipment for the furtherance of war preparations involving the use of forest products, in response to the many demands of the War and Navy Departments, and the war industries.

Drain on Service Heavy.

There were furnished to the Army and Navy 446 men, while a considerable number left to serve in the War and Navy Departments in a civil capacity, and to take part in industries directly concerned in producing materials for war uses. Still others were forced to leave the service because, with the low standard of salaries, they were unable to meet the rising cost of living. All told, 1,179 persons had gone from the service prior to October 1. The situation of the forest officers, clerks, and others having fixed bases of salary is regarded by the forester as very critical, requiring the earnest consideration of Congress.

The drain upon the personnel had an unfavorable effect in some respects upon the standards of work. An example is cited in which, on a forest in Idaho where practically the entire forest force had been replaced by relatively inexperienced men, it cost $50,000 to put out fires that normally would have been brought quickly under control; and there was also a loss, in timber destroyed or damaged, of $40,000.

"The reduction of the trained force by transfer to other branches of the Government for military work," says Col. Graves, who was himself sent to France as an Army officer to plan the work of the forestry troops there, "constituted the normal contribution of the organization to the war."

Business of the Year.

The receipts from the national forests were slightly greater than in 1917, with a total of not quite $3,600,000. The grazing business produced an increase, but the timber business fell off. As a result of eliminations based on the land classification work, the area showed a slight net reduction, leaving the amount of Government-owned land in the forests at the close of the year 155,927,568 acres.

TEN HELPS IN MARKETING WOODLAND PRODUCTS.

1. Get prices for various wood products from as many sawmills and other wood-using plants as possible.
2. Before selling, consult neighbors who have sold timber and benefit from their experiences.
3. Investigate local timber requirements and prices. Your products may be worth more locally because transportation is saved.
4. Advertise in papers and otherwise secure outside competition.
5. Secure bids if practicable both by the lump and by log-scale measure.
6. Be sure that you are selling to responsible purchasers.
7. Get a reliable estimate of the amount and value of the material before selling.
8. Market the higher grades of timber and use the cheaper for farm purposes.
9. Remember that standing timber can wait over a period of low prices without rapid deterioration.
10. Use a written agreement in selling timber, especially if cutting is done by purchaser.

Regarding the land classification the report says: "After nine years of steady sifting to separate from the forests such lands as should not be retained permanently in public ownership the task has, except in Alaska, been brought substantially to completion. The existing forests are approaching stability."

Hand in hand with the cutting down of the forests a movement in the opposite direction has taken place, which has the same basic purpose—to provide for the highest use of the land; and this movement, the report states, is growing stronger. This is due primarily to the demonstration of the public advantages realized through Government ownership and administration. A memorial of the State of Idaho is cited, asking Congress to include in the national forests an area of over 1,000,000 acres in that State which is now contributing little or nothing to the wealth of the State but is undergoing deterioration. This addition, says the report, should unquestionably be made.

Forest Fires Many.

A very severe fire season, due to unfavorable weather conditions, caused many bad fires, especially in the Northwest. The report anticipates that it will probably be necessary to seek a deficiency appropriation of at least $750,000 to cover the cost of meeting the fire emergency. The present methods of protecting the great bodies of heavy timber in the most inaccessible regions, says the report, should be modified. Not enough is spent on the regular protective system, and consequently large emergency expenditures become necessary. The funds thus spent might be better used, says the report, in keeping fires from becoming serious through greater outlays for fire prevention, early detection, and swift concentration of fire-fighting forces.

The worst fires to control are those on a small number of forests, mainly in northern Idaho and western Montana, where there are few improvements and the country is still an almost uninhabited wilderness. To meet this situation provision for larger expenditures for patrolmen is advocated. "Still more important," says the report, "is a recognition of the fact that the forests can not be protected economically and efficiently against fires until they are well equipped with roads, trails, telephone lines, and lookout stations. Construction crews can be so distributed on the forests and their work so timed that when fires break out they can be thrown readily into the fight." By such measures it is believed that the emergency expenditures can be cut down materially.

Some War Investigations.

The report deals fully with the numerous and important ingestigations made for the benefit of war activities. Practically the entire research organization was placed on special war investigations, and was increased in size more than five times to meet the demand for information. Among the most urgent problems were those connected with the construction of aircraft, and a vast amount of information applicable in airplane construction was obtained.

Practically all the war work branches of the Government having to do with the purchase of wood materials were aided, including in the Army the General Staff,

the Bureau of Aircraft Production, the Ordnance Department, the Signal Corps, the Quartermaster Department, the Engineer Corps, the Gas Warfare Department, and the Surgeon General's Office; in the Navy the Bureaus of Construction and Repair, Steam Engineering, Yards and Docks, and the Navy Yards; the Shipping Board; the Emergency Fleet Corporation; the Director General of Railroads; the War Industries Board; the War Trade Board, housing organizations; the Fuel Administration and the Food Administration. In addition, cooperation and assistance was given the Allied Governments and to the industries furnishing war materials.

Mention is made of many other special studies concerning such matters as containers and crates for overseas shipments, for which were developed designs insuring the required strength while calling for a minimum shipping space, questions relating to the rapid drying of woods for gun stocks, artillery carriages, escort wagons, and other vehicles, and investigations in connection with wood distillation products for various military uses. Much attention was given also to locating supplies of timber of various kinds, and to stimulating production.

CONTROLLING CODLING MOTH.

During the past year biological studies of the codling moth have been continued by the Bureau of Entomology, United States Department of Agriculture. Also much experimental work bearing upon various practical points in control of this serious pest has been done in various orchards. In cooperation with the Colorado Agricultural Experiment Station, in the Grand Valley of Colorado, spraying experiments have indicated that a schedule of six applications of arsenate of lead, at the rate of 4 pounds of the powdered product to 200 gallons of water, with the addition of 4 pounds of fish-oil soap, will make an effective treatment for the orchards in that valley.

Owing to jointworm injury to wheat, unusually severe in Michigan, Indiana, Tennessee, Virginia, and portions of Illinois during the year, the yield of this grain was greatly decreased. Advice for the control of this injurious pest has appeared in a new Farmers' Bulletin—No. 1006.

When locating the well the direction of surface and underground drainage should be considered, to the end that the water supply may not be contaminated by the sink drain, cesspool, or other sources of filth.

Secretary Corrects Wrong Impressions On Cotton Distribution and Marketing

The Secretary of Agriculture recently wrote a letter to E. A. Calvin, Washington representative of the Cotton States Official Advisory Marketing Board, with reference to the present cotton marketing situation. The Secretary corrected several erroneous impressions which seemed current in some quarters as to the activities of governmental agencies affecting the marketing and distribution of cotton, and particularly stressed the importance of the possession of accurate, reliable information by the farmers. The letter follows:

"Reference is made to your contemplated visit to the Georgia State Farmers' Union on December 3 and to your inquiry as to whether the Department of Agriculture had any message for the farmers of Georgia.

"Probably the matter about which the farmers of Georgia are most vitally concerned at the moment is the marketing of their present cotton crop. I am glad that they will have an opportunity to get from you definite information on certain points in this connection which do not seem to be clearly understood or which seem to be misunderstood entirely.

No Cotton Price Fixing.

"There appears to be considerable misapprehension as to the steps taken or in contemplation by the Cotton Committee and the Committee on Cotton Distribution. As you know, of course, neither of these committees was appointed by the Department of Agriculture. They were appointed by the War Industries Board, with the approval of the President. Mr. Brand, the Chief of the Bureau of Markets of this department, however, consented, with the approval of the department, to serve as chairman of the Committee on Cotton Distribution. Although these committees have been functioning as agencies of the War Industries Board, the Department of Agriculture naturally has taken a keen interest in their proceedings, and has furnished to them from time to time such available information as they have requested. I think it would be well for you to explain clearly to Georgia farmers the circumstances under which these two committees were appointed, their functions, and the steps which they have taken. For instance, it appears not to be understood in some quarters that the Cotton Committee some time ago, before it permanently dissolved, definitely recommended to the President that no price be fixed for cotton and that the President approved this recommendation. I think it would be well for Georgia farmers to understand clearly that there will be no cotton price fixing by any governmental administrative agency.

Movement Facilitated.

"There appears also to be an impression in some quarters that some agency in some way or other has restricted the movement of cotton, and particularly its exportation. You know, of course, that, as a matter of fact, there has been no attempt by the Government to restrict the movement of cotton; but on the contrary, with full understanding of the importance of free marketing of cotton, particularly during the fall season, it has endeavored and is endeavoring in every way possible to facilitate the free domestic movement and the exportation of cotton through the regular commercial channels.

"The abnormal conditions brought about by the war, and particularly the recent decline in prices, have turned attention very generally to the cotton future exchanges. You have been in close touch with the Department of Agriculture with reference to operations on these exchanges, and the department has gladly furnished you all the information in its possession whenever you have requested it. If the farmers of Georgia are interested in this question, it appears to me that the occasion of your address would be an opportune moment for you to discuss it with them.

"Other points will suggest themselves to you for discussion. I know that you can render good service in your addresses to farmers. I know that you share with this department the feeling that it is of the utmost importance that they and all other of our citizens have full and accurate knowledge of all pertinent facts with reference to the cotton situation and any other matters of vital interest.

"Very truly, yours,

"D. F. Houston,

"*Secretary.*"

Of the total area surveyed and mapped in detail during the fiscal year 1918 by the United States Bureau of Soils, 11,936 square miles lay within the cotton belt, 4,410 square miles in the Pacific Coast States, and 21,790 square miles in the remainder of the country.

New U. S. Standards for Staple Length of Cotton Soon Are to Be Described

New official standards of the United States for length of staple of cotton soon will be described by the United States Department of Agriculture in a service and regulatory announcement of the Bureau of Markets.

Nine lengths specified in the standards are represented by physical types, as follows: $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, $1\frac{5}{8}$, and $1\frac{3}{4}$ inches.

Reproductions by the photgravure process of samples of cotton having these lengths (made from the original official length standards) will be shown. These photogravures show the actual measurements as nearly as possible by any present-day commercial method of illustration, and for all practical purposes are the exact lengths of the original samples.

Realizing that differences in methods of pulling staple may be the cause of variations in results obtained by different classers, the Bureau of Markets has made a study of the methods used by those who are acknowledged to be experts in this particular work. As a result, a method has been devised which meets with the approval of the bureau, and its general adoption in determining length of staple according to these standards is recommended. Photographs have been taken of the successive motions involved in this method, which will be reproduced in the service and regulatory announcement.

Material is on hand for the making of copies of these lengths standards, and the price will be $1 for each length standard, or $9 for a full set. Anyone desiring to purchase one or more will receive an application blank by writing to Charles J. Brand, chief, Bureau of Markets, Washington, D. C.

New Grade Standards for Pima Cotton Explained; Numbers Used

The numerical system of grading instituted by the Bureau of Markets, United States Department of Agriculture, in the new grade standards for Pima cotton is explained in a recent statement by the bureau.

The grades of the official cotton standards for American Egyptian cotton now established are practically the same as the ones which have been formerly known and used under the names of fancy, extra, choice, standard, and medium, but which were made of the Yuma variety of cotton. The present ones are very similar in grade as far as color, frost stain, and foreign matter in the way of leaf, etc., are concerned, the only appreciable difference being in the lighter color which obtains in the Pima variety.

In the official cotton standards for American Egyptian cotton, numbers have been substituted for grade names as follows: No. 1 for fancy, No. 2 for extra, No. 3 for choice, No. 4 for standard, No. 5 for medium.

Furthermore, American Egyptian cotton which in grade is between any two adjoining grades represented by types in the standards will be designated by the grade number of the higher grade followed by "$\frac{1}{2}$". For instance, should a bale be halfway between grades 1 and 2, it will be known as grade $1\frac{1}{2}$, between grades 2 and 3, it will be known as grade $2\frac{1}{2}$, and so on. The length of staple will be designated by the term which expresses its measurement in inches and fractions of an inch, disregarding any fraction which is less than a thirty-second. Formerly the lengths of staple of American Egyptian cotton, Pima variety, have been known as staple No. 1, No. 2, and No. 3. They will now be known by their actual lengths according to measurements, as $1\frac{7}{16}$, $1\frac{15}{32}$, $1\frac{1}{2}$, $1\frac{17}{32}$, $1\frac{9}{16}$, $1\frac{19}{32}$, $1\frac{5}{8}$, $1\frac{21}{32}$, $1\frac{11}{16}$, $1\frac{23}{32}$, $1\frac{3}{4}$.

EXPECTS BIG YEAR IN BEEKEEPING; HONEY WANTED HERE AND ABROAD

Increase in the cost of honey, due to the big export demand created by the war, makes it safe to predict that the coming year will see the greatest effort ever made in furthering beekeeping, according to the annual report of the Bureau of Entomology, United States Department of Agriculture. During the last half of the year honey to the value of perhaps $2,000,000 was exported—about 10 times the valuation for any year previous to the beginning of the war—indicating that honey has ceased to be a luxury in the minds of the allied peoples.

Also, the home demand for honey has increased. Figures are not available, however, as much of the honey of this country never reaches the larger centers of trade. In addition to these two demands, the heavy loss of bees during the winter of 1917 and a resultant decrease in production in the eastern United States likewise was responsible for increasing the price of honey to the highest figure recorded in many years.

In expediting shipments of honey and supplies for beekeeping, and especially in granting permits to beekeepers to buy sugar for feeding their bees where this was necessary, the United States Food Administration has been of great help it is stated. The issuing of the semimonthly market reports by the Bureau of Markets, United States Department of Agriculture, has made it possible for the first time for the producer to get reliable information regarding the honey markets. This has been a chief factor in making it feasible to encourage beekeepers to increase their production. Of importance in this crisis in the bee industry has been the continuation of the crop reports of the Bureau of Crop Estimates.

The United States Fuel Administration permitted the chief factories of beekeeping supplies to operate on fuelless days, and supplied one factory with coal at a serious time, and the Post Office Department ruled that bees without combs may be shipped by parcels post. This ruling materially helps in the proper distribution of bees whenever there is a serious bee loss in any part of the country.

Organization among beekeepers for better marketing has resulted, through the assistance of the Bureau of Markets, in the formation of two large cooperative societies.

In respect to bee culture the most important work of the Bureau of Entomology was a series of field experiments on the behavior of European foulbrood in the hive during the time that it is being cleaned out by the bees. These experiments served to throw light upon the method to be used in preventive treatment. The result of this work, which marks a new phase in bee disease, and which promises to yield most helpful results, soon will be published.

TEMPERATURE OF GROUND WATER.

The temperature of ground water varies with latitude, season, depth, and geological conditions, says Farmers' Bulletin 941, "Water Systems for Farm Homes." Ordinarily, at a depth of 40 to 60 feet, it is about 50°, and is nearly uniform throughout the year. At lesser depth, seasonal and atmospheric changes are likely to affect it. Hence, if there is much fluctuation in the temperature, or if the water is made turbid by rains, a supply of shallow origin is indicated. Deep ground waters are generally progressively warmer, the deeper obtained, the increase running about 1° for each 50 to 60 feet increase in depth.

Congratulates South Carolina People On State's Release from Quarantine

Congratulations to the people of South Carolina on their achievement in eradicating the cattle fever tick to such an extent that the Federal quarantine against the shipment of cattle from quarantined areas was wholly lifted December 1 are contained in a letter from Secretary of Agriculture D. F. Houston to Hon. Richard I. Manning, governor of South Carolina.

The Secretary's letter follows:

"The people of South Carolina, and especially of the 10 counties to be released on December 1 from the Federal quarantine against the cattle fever tick, are to be congratulated on their success in eradicating this destructive insect enemy of the cattle industry in the South. This further action removes the quarantine restrictions from the entire State. This is important not only to your State but also to the entire country, especially the tick-infested portions, since it means a broad avenue of free territory to the Atlantic Ocean. In 1917 the State of Mississippi was released from quarantine, making the first strip of uninfested territory from the interior to the Gulf. These achievements, coupled with the fact that in both 1917 and 1918 all previous records in amount of territory cleared of the tick have been broken, furnish ground for the belief that within a few years the parasite will be driven from American soil. This will result in great benefit not only to southern livestock raising and general agriculture but to the Nation as a whole. For a considerable period, as I pointed out in a recent statement to the farmers and agricultural forces of America, the world will have need particularly of a larger supply than normal of live stock, and especially of fats. We should not fail, therefore, to adopt every feasible means of economically increasing our live-stock products. As a part of our program, we should give due thought to the eradication and control of all animal diseases, one of the most destructive forms of which is carried by the cattle fever tick.

"With cattle fever conquered and with troublesome quarantine restrictions eliminated, nothing should hamper the free interchange of live stock between the northern feeding regions and the farms of South Carolina. The farmers of the State are now free to develop the dairy industry upon a plane of profitable production. They are also free to sell their beef cattle on their merits in competition with all other tick-free animals instead of being required to dispose of them for what they will bring for immediate slaughter.

"To people of South Carolina belongs the fullest credit for their enterprise in providing dipping vats and the necessary arsenical solutions, their persistence in dipping all their animals regularly, and their determination to let nothing interfere with work of eradication. I hope that they will be equally diligent in seeing that nothing is omitted to prevent the reappearance of the tick in the State.

"It has been a pleasure and a privilege to cooperate with Clemson College and your other State and local agencies in this important and successful undertaking.

"Respectfully,

"D. F. HOUSTON,

"*Secretary.*"

Fewer Acres, More per Acre Helped This Farmer Along

"The county agent has induced me to handle fewer acres and produce more per acre by proper crop rotation and cover crops," writes a farmer in Chapin, S. C., to the United States Department of Agriculture. Hard work and economy in living was the yearly grind of this man who, until the agent set him right, knew nothing of advanced methods in agriculture. Here is his own account of it:

"I had a field of thin land that once produced about one-half bale cotton per acre. I was told by the farm demonstration agent to grow burr clover and cotton on this land. I first limed my land to sweeten the soil so I could grow clover successfully. After growing clover there for a couple of years I was able to use raw phosphate rock to get my supply of phosphorus. By getting phosphorus from this source and nitrogen from clover, I am using very little other fertilizer in this land. I graze cattle in the spring and grow two bales of cotton per acre. Up to the time the county agent visited me I knew nothing of hairy vetch, but now I am growing it successfully on my farm for hay, pasture, and cover crop, and am getting excellent results. I am also growing lespedeza for cover crop and have seeded a good acreage for pasture, from which I get good results. I am highly pleased with this crop for the reason that it continues to reseed itself as burr clover. I am growing other legumes on my farm that are giving equally as good results as these mentioned.

"The county agent has induced me to handle fewer acres and produce more per acre by proper crop rotation and the use of cover crops. The agricultural agent is always a welcome visitor."

Sale of Surplus Farm Timber Adds to Cash Return From Land

Ten helps in marketing woodland products, summed up in the accompanying chart, should be carefully considered by those desiring to sell timber. These aim to bring the producer in touch with the consumer so as to market as direct as possible. High-grade logs of white oak, yellow poplar, red gum, ash, cherry, black walnut, etc., in most cases can be sold direct to the manufacturing plants, although located at considerable distances. Local wood-using plants usually buy in lots as small as wagon or truck load, but not less than a carload lot can be sold profitably for shipment.

In most sections of the South the farms have sufficient woodland for the best welfare of the farm, but in a few districts like the "black belt" and intensive tobacco growing sections, the timber has been mostly cut, and owners are obliged to buy firewood and lumber, posts and rough timbers for the upkeep of their farms. Where there is an excess of wooded land and growing timber above the permanent needs of the farmers timber becomes an important product, to be sold in many cases from land cleared to make openings for more field crops or pasturage. The farmer's interest centers naturally in the conservation and disposal rather than the production of timber. Much of the grown timber was on the farm when the present occupant came into its possession. In the case of the ordinary field crops and live stock, however, which mature in from one to three years, production usually is the prime consideration.

ARSENATE OF LIME AS A SPRAY.

Experiments thus far made by the Bureau of Entomology, United States Department of Agriculture, indicate that arsenate of lime may be used in all situations where Paris green has been employed, and that for pome fruits (apple, pear, quince) it will often be a satisfactory substitute for arsenate of lead, the present cost of which is much above normal, when used with lime or fungicides containing lime.

Foreign Food Prices Show Disturbance of War in Production and Distribution

The Food Administration has issued the following statement:

From information received by the United States Food Administration through channels considered reliable, it is possible to acquaint American producers with recent quotations for certain foodstuffs and feeds abroad. The prevailing rate of exchange has been observed in expressing values in terms of United States currency.

France.

Retail prices of straw in Paris late in September ranged from $25 to $50 per ton. Lucerne (alfalfa) was quoted at $58 to $76 per ton. Potato prices ranged from $2.22 to $3 per bushel; butter from 83 cents to $1.02 a pound, and poultry from 40 cents to $1.82 per pound. Although the fixed retail price of horseflesh was 17 cents per pound late in September, it was sold through unauthorized channels for from 41 to 50 cents per pound.

England.

Wholesale milk prices in England have been placed on a scale which stipulates a price of 50 cents per gallon between Nov. 21 and December 16. After that date and until May 1, 1919, the price is 50 to 51 cents per gallon.

Switzerland.

The fixed wholesale price for potatoes of the 1918 crop is $1.74 per bushel. Purchases from the producer can be made only by the cantonal authorities.

Germany.

In September people were paying $174 per pound for saccharine which a few months before sold for about $35 per pound. About September 15 the price of butter in Berlin was $1.04 per pound and in Hamburg 98 cents per pound. The fixed producers' maximum price for potatoes during September was 58 cents per bushel in Brandenburg and 52 cents in Bavaria.

Bohemia.

During September meat in Bohemia cost from $2.05 to $2.56 per pound, and flour was selling for slightly more than $1 per pound. Plum jam, which formerly cost 5 cents per pound retail, sold during September for $1.23 per pound.

Spain.

Retail meat prices during September were: Beef, 31 to 32 cents per pound, and lamb, 33 to 34 cents per pound. The retail price of potatoes varied from $1.14 to $2.22 per bushel in different localities. By a recent price-fixing regulation it will be possible to sell "whitish" sugar for 18 to 19 cents a pound retail.

Russia.

Milk has been selling in Moscow under restricted consumption for about 19½ cents per pint bottle, and more lately at considerably advanced prices following the removal of restrictions.

Argentina.

The Royal Commission in Argentina has purchased cereals for the allies at the following prices per bushel: Wheat, $1.56; oats, 45 cents; corn, 62 cents.

Although the reports are fragmentary, they show by the wide variance in different countries how the war has interfered with normal production or distribution of food, and in some cases both. The European prices for the most part clearly reflect the known shortage of foods, but in cases of regulation, as for instance, the English milk schedule, an artificial factor is introduced which must be understood if accurate conclusions are to be drawn.

The Argentine grain quotations are especially worthy of study as showing the effect on prices of geographical remoteness and lack of adequate shipping. They have made material advance as a result of peace.

DEMONSTRATIONS SHOW POSSIBILITIES OF PEACH GROWING.

As a result of a number of orchard demonstrations supervised by county agents in the eastern part of Maryland, peach growing is receiving considerable attention by farmers in that locality. During the past growing season nine orchard demonstrations were conducted by county agents in Talbot, Caroline, and Worcester Counties. The total cost of operating these orchards for the year amounted to $1,845.09. They produced 26,323 baskets of peaches yielding a net profit of $30,576.36. From one Talbot County orchard $12,740.75 worth of peaches were sold, the profit over cost of production and marketing amounting to $9,732.08.

$100,000 SAVED FOR SIX COUNTIES BY KILLING RODENTS IN COLORADO

More than $100,000 worth of crops and forage in six counties of Colorado was saved this year by poisoning prairie dogs. That is the estimate of specialists of the Biological Survey, United States Department of Agriculture, who cooperated with the extension service of the Colorado State College of Agriculture and the Colorado State entomologist in treating with standard poison bait more than 200,000 acres of prairie-dog infested crop and range lands in Huerfano, Custer, Montrose, Rio Grande, Saguache, and Otero Counties. Plans are being made to extend this work greatly in the coming season.

Prairie-dogs and other small animals which have damaged farm crops and stock ranges in this State to the extent of several million dollars every year are giving way before organized and systematic poisoning campaigns. Fifty-four of the 63 counties in the State are more or less heavily infested with prairie-dogs, making a total infested area of more than 11,000,000 acres. Sporadic efforts by individuals to control the pest by inferior methods have failed, but several hundred thousands acres have been freed by cooperative campaigns in agricultural sections.

The usual plan of campaign is as follows: The establishment of pest districts under the State pest law, which provides for the enforcement by the State entomologist of pest extermination in organized pest districts upon application of the majority of resident landowners; the furnishing of standard poisoned bait to landowners at cost, and free when for use on public lands; and the general supervision of the campaign by Federal or State experts. The plan also includes the further enlistment of the local cooperation of county officers, stock associations, farm clubs, and all individuals. The county agricultural agent, assisted by Federal or State experts, is usually the one on whom the work of organization and the conduct of the campaign rests. This plan is modified to suit local conditions. The various counties are being reached as rapidly as available funds will allow, and are being taken up in the order of their importance and the bearing they may have upon other already organized campaigns.

A field office of the Biological Survey is being maintained at 710 Interstate Trust Building, Denver, Colo.

A notable example of home-planned utilities is found upon a farm in northern Utah. By personal planning and hard work the owner of this farm gradually has equipped his house with a pressure water system, a laundry containing a power washing machine, wringer, mangle, and drying machine, a heating plant, electric lights, electric range, electric heaters for emergency use in chambers, and a vacuum cleaning system.

How Boys' and Girls' Clubs Increased Meat Production in North and West

In response to the call of the Government to speed up the production of meat State leaders of boys' and girls' clubs in the Northern and Western States immediately enrolled 32,650 members for that purpose. They were asked to devote their attention to pork production, inasmuch as hogs can be grown in a comparatively short time. On the basis of each boy and girl enrolled growing one pig, and figuring the weight of each pig at 200 pounds when ready for market, these boys and girls are producing 6,530,000 pounds of pork. At 20 cents a pound this means a value considerably over $1,000,000.

Samuel Evans, of Brazil, Clay County, Ind., a club boy 18 years old, gives his reasons for entering a pig contest, and tells his experience in the following story:

"The Story of My Pig."

"The reason that I entered the pig contest was an argument that I had with a neighbor. He said that a hog would not gain over a pound a day for any length of time. I said that he was wrong and that I would prove it to him. I immediately started to look around for a pig. Because of the previous observations I had made I decided to get a Duroc Jersey. I sent to different experiment stations for bulletins relating to hogs, and read all I could about them in books and farm papers. From the analyses of feeding stuff in the bulletins I got the address of the firms that sold the best feed and sent for some. I went into the contest with all my heart because I felt that I must defend my argument.

"I built a house and pen. The house was in a cool, shady place, where the sun could shine on it a few hours in the mornings. Close by it I made a cement wallow and an oiler. The fence was built around the patch of rape, oats, and clover that I had sown for the pig. I made things sanitary and kept them so during the contest. The next step was to introduce the little runt to his new quarters. If he was disgusted he did not show it by grunting, for from some cause after the first day he never grunted, squealed, nor rooted. Several things indicated that this pig needed spice for his system, and as 'variety is the spice of life,' I decided on a variety of feeds and way of feeding which were none the worse for the pig. People must have their foods prepared differently at different meals, and as a pig comes close to being the same as some so-called humans, I prepared his feed accordingly.

"I fed only the amount of feed that the pig would clean up in a short time, consequently he ate large quantities of pasture. I was always on the job and the pig responded, and it was not long until I had not a pig but a hog instead.

"The results of the contest were: The pig weighed 58 pounds at the beginning and 243 pounds at the end. He gained 185 pounds in 92 days, or 2 pounds a day. The cost of food was $9.30, or 5 cents per pound of gain. The value at the end was $46.17 and the profit was $28.87.

"On account of the hot weather I kept him a few days after the contest ended, and when I butchered him he weighed 267 pounds on foot and 227½ pounds dressed. He dressed out 85 per cent. I received 25 cents a pound, which made me a total of $56.87. After the contest was over I wanted to see how my results compared with some other experiment, and this was what I found. Carlyle, of Wisconsin University, found that 1 acre of rape equals 2,436 pounds of corn meal and wheat shorts when fed in combination with these feeds. Taking one-sixth of this, although my patch was larger, it would make the equivalent of 406 pounds of concentrates that my pig would have gotten from the rape, not considering the oats and clover. I fed 217 pounds of concentrates and 500 pounds of milk, which is equal to 100 pounds of concentrates. The Alabama station reports that rape makes a saving of 200 pounds of grain for every 100 pounds gain. This compared favorably with my results.

"I figured that the cheap cost of production was due to three things: First, the high protein content of the concentrates; second, good health of the pig, due to great variety of feed and sanitary conditions of the lot and sleeping quarters; third, the pig consumed a large amount of rape due to good health and appetite caused by the blood flour and tankage, thus reducing the amount of other feeds.

"Another thing that I learned was that if a boy wants something decidedly interesting he should by all means get a pig and get into the game. When the contest is over he will say that he has learned something that he never knew before and probably never forget, because he learned it by experience."

TO ALL FERTILIZER LICENSEES OF THE U. S. DEPARTMENT OF AGRICULTURE.

You are hereby notified that, effective December 15, 1918, all memoranda "Relating to the Importation, Manufacture, Storage, and Distribution of Fertilizers and Fertilizer Ingredients," issued by the Office of Fertilizer Control, are hereby declared canceled.

The agreement of fertilizer manufacturers to charge the same price in wholesale lots of not less than 30-ton carloads, or such carload unit as may be fixed by the Car Service Section of the United States Railroad Administration, of the same grade and quality, to individuals or associations, for cash or bankable security, as they do to merchants or dealers in the same locality or f. o. b. factory *is not canceled* by this notice.

All statistical data and reports requested by the Office of Fertilizer Control prior to December 15, 1918, must be furnished promptly.

WM. WALLACE MEIN,
Assistant to the Secretary.
December 12, 1918.

AGENTS TEACH COOPERATION.

Cooperative buying and selling has taken a firm hold on the farmers of the South, and they say that primarily it is due to the leadership of the county agents. Nor are bankers averse to giving due credit to the initiative of these representatives of the State colleges of agriculture and of the United States Department of Agriculture. Here is the opinion of a bank president in Orangeburg, S. C.:

"Cooperation and leadership by this department of Government has enabled us to establish a packing house where the farmer can market one hog or a car of hogs any day in the year. This agency has established a Farmers' Cooperative Marketing Association in this city, where all surplus corn, hay, potatoes, or any other crop can be promptly and profitably marketed. It has also caused to be organized a creamery where cream and milk can be marketed in any quantity every day in the year. In its work of generally helping the farmer to increase crop production and its cooperation assisting him to market his crops intelligently, I know of no single agency that has accomplished so much."

A good water supply, a complete sewage-disposal plant, and effective heating and lighting systems constitute the four prime utilities of the farm home, the foundations of safe, comfortable living.

Deterioration of water may be due to causes that make it unwholesome but not, so far as known, destructive of health.

Better Dairying by Bull Associations; Joint Use of Good Sires Improves Herds

Dairymen who would like to use pure-bred bulls to improve their herds but who can not afford to purchase such animals should investigate the advantages of a cooperative bull association.

These organizations are formed by farmers for the joint ownership, use, and exchange of pure-bred bulls. The purchase price and cost of maintenance are distributed according to the number of cows owned by each member, thereby giving the dairyman an opportunity to build up his herd at a minimum expense. The organization also helps its members to market dairy stock and dairy products, to fight contagious diseases of cattle intelligently, and in other ways to assist in improving the dairy industry. Farmers' Bulletin 993, recently issued by the United States Department of Agriculture, gives directions for the organization and operation of bull organizations, together with constitution and by-laws necessary for such an organization.

Type Recommended.

The typical cooperative bull association, as recommended by the dairy specialists of the department, is composed of from 15 to 30 farmers who jointly own five bulls. The territory in which these farmers live is divided into five "breeding blocks," one bull being assigned to each block. As many as 50 or 60 cows may belong to the farmers in each block, and the bull in the block should be kept on a conveniently located farm. To prevent inbreeding, each bull is moved to the next block every two years. If all the bulls live, and if all are kept until each has made one complete circuit, no new bulls need to be purchased for 10 years. In this way each member of the association has the use of good pure-bred bulls for many years, at a cost of only a small part of the purchase price of one good bull—usually less than is invested in a more inferior bull owned by individual dairymen.

In a survey conducted by the department on 1,219 farms in eight districts in Iowa, Minnesota, and Massachusetts, in which there were no associations, it was found that there were 817 bulls, having an average value of $76. Had the owners of these cheap bulls been properly organized the same investment would have purchased the necessary bulls of an average value of $283. In one association having more than 100 members the original cost of good pure-bred bulls to each member was only $23. When questioned regarding the value of cooperative bull associations, 150 farmers in Maryland, Michigan, and Minnesota estimated that the use of bulls belonging to the organization increased the value of the offspring in the first generation from 30 to 80 per cent, with an average of 65 per cent.

Success Demands Care.

The selection of the bulls for an association is one of the most important considerations. A good pure-bred bull will make rapid and marked improvement in the herds, and the association interest increases in proportion to the improvement obtained. If a poor dairy bull is used the milk production of the members' herds is sometimes reduced, the interest is lessened, and these conditions may lead to the breaking up of the association.

Success in the operation of an association depends a great deal on the care that is used in its organization. Dairymen contemplating forming an association should consult the local county agent, write to the State agricultural college, or to the Dairy Division of the United States Department of Agriculture at Washington, D. C., for advice and assistance. The Farmers' Bulletin previously mentioned will be found of great value along this line, particularly the suggestions which are given in connection with the constitution and by-laws.

At the close of the fiscal year 1918 active cooperation in soil-survey work was in operation with 22 States and with four bureaus of the Federal Government.

A water system that will provide a wholesome supply for family use, prove serviceable for farm uses, be as nearly permanent as may be made, and cost the least has been one of the four principal utility problems of the average farmer.

CROP REPORTS ISSUED IN THE FIELD.

Each field agent of the Bureau of Crop Estimates, United States Department of Agriculture, now publishes a crop report from his own territory. Immediately upon the issuance of a crop report in Washington the United States figures are telegraphed to each agent, together with figures for his particular territory. The agent at once issues a mimeograph report with comments on crop and weather conditions in his State, copies of which are furnished to the press and to crop reporters and published in full in many dailies. In some of the States agents now are issuing reports on a county basis. This service is winning warm approbation.

For this service in securing quickly reliable reports along special lines decided improvements have been made in the organization of this bureau. Field agents of demonstrated ability have been employed; their offices supplied with clerks, telephones, and other time-saving equipment; and every field agent has a mimeograph and an addressing machine. The field man now is able promptly to make both general and restricted special investigations, either upon his own initiative or upon telegraphic request from Washington.

How U. S. Corn Crop Is Harvested; Four-Fifths of Area for Grain

About four-fifths of the area in this country planted to corn is harvested for grain, the remainder of the crop being cut for silage and for green feed. Various practices govern the harvesting of the mature grain. It is estimated by the Bureau of Crop Estimates that 58 per cent is gathered by snapping the ears; about 25 per cent of the crop is cut and shocked in the field; 9 per cent is cut and hauled to the barn for husking; 3 per cent is harvested by live stock in the field; and that unnamed practices are used to harvest 6 per cent of the crop.

The burning of cornstalks is to be condemned as a waste of a feed and a soil improver, and yet about one-eighth of the cornstalks left in the field in the United States are disposed of in this way. This procedure is followed mostly in the South and some of the corn-belt and Pacific States, where the fraction is usually larger than one-eighth. Where stalks are left in the field more than one-half of such area in the whole country is pastured and the stalks on one-third are plowed under.

A large amount of forage is derived from the corn crop. Besides the 19 per cent of the entire area that contributes silage and green feed, 14 per cent of that kept for grain is topped, and on 19 per cent the leaves are pulled. Besides, there is an enormous amount of stover that is pastured in the field and is cut and fed in the winter. It is estimated that the harvested corn stover per acre averages over 2 tons and that in many States the quantity is 3 to 4 tons.

Terracing Is Best Way of Stopping Losses Caused by Erosion of Soil

Soil erosion, or the washing away of earth by water, costs the farmers of the United States $1,000,000 every year. This is the estimate made by the United States Department of Agriculture and published in Farmers' Bulletin No. 997, "Terracing Farm Lands." Erosion injures or practically ruins fertile land; bottom as well as hill lands suffer from its ravages, the bulletin adds.

Soil losses from this cause occur in every State in the Union and almost in every county in every State. Nine years ago the National Conservation Congress reported that 4,000,000 acres of farm land had been practically ruined by erosion of soil. Terracing, the bulletin says, is the most effective method of stopping erosion. Other methods recommended for reducing soil washing and which should be employed in connection with terracing are deep plowing, growing cover crops, plowing under organic matter, contour plowing, and underdraining.

Types and Their Uses.

There are two distinct types of terraces—the bench and the ridge terrace. The former is particularly fitted for use on steep slopes, while the latter is well adapted for use on moderate slopes. Ridge terraces are divided into two classes, those with narrow bases and those with broad bases. Both may be laid out level or with a fall along the terrace to carry the water off at a low velocity. Terraces having broad bases may be cultivated and readily crossed by farm machinery without injury to the terraces. This is not true with narrow-base terraces, and for this reason they are less desirable. When broad-base level-ridge terraces are used in connection with drain tile on any type of soil, it unquestionably is the most effective method ever employed to stop erosion.

Erosion is reduced to a minimum in the terrace channel by carrying the water off the field in a broad, shallow sheet at a low velocity. It has been found that average soils are not washed much in broad-terrace channels, where the fall does not exceed 6 inches in 100 feet, and it is recommended that this fall never be exceeded. However, even with this fall, some washing occurs, and some rich soil particles are carried off the field. Hence a graded terrace should be given no more fall than is necessary to remove the run-off water without danger of the terrace being overtopped. The terraces may be laid out with a uniform or a variable fall. The best results are obtained where the variable fall is used, since it tends to prevent the concentration of the water at the lower end of the terrace. Also less washing occurs where the variable fall is used.

Water Outlets Important.

The provision for suitable outlets is one of the biggest problems in terracing work. Natural water courses make the best outlets. Sometimes it is necessary to construct ditches for use as outlets. Where natural draws, gullies, or roadside ditches are used they should be protected from erosion by building across them brush, concrete, stop-plank, or soil-saving dams. The growing of grass in draws used for outlets is especially recommended.

The work of laying off terraces should be done carefully, preferably by an experienced man. The best instruments are the farmer's small telescopic level and the engineer's large level.

Terraces require considerable care and attention, particularly during the first year after they are built. They should be inspected after every heavy rain, and any breaks or weak places repaired immediately. The best results are obtained when the crop rows are run parallel to the terraces.

In order to maintain the height and width of the terrace a cultivated terrace should be plowed at least once each year, and the soil should be thrown to the center of the terrace.

WAR SECRETARY THANKS DEPARTMENT FOR HELP IN COLLECTING FRUIT PITS

The Secretary of Agriculture has received the following letter from Newton D. Baker, Secretary of War:

"On behalf of the War Department, I wish to express my sincere thanks to the Department of Agriculture for its splendid cooperation with the Gas Defense Division of the Chemical Warfare Service, in connection with the campaign to collect fruit pits and nut shells which has just closed.

"Owing to the cessation of hostilities the campaign has been discontinued too abruptly and too soon after its start to form an accurate judgment of the results obtained. We do know, however, that practically every person in the country knew of the need for pits and shells, and that in nearly every town and community these were being saved. Something over 100 carloads of materials have been received at our carbon plants or are on the way.

"It was realized early in the campaign that to make a success of it we must reach the farmers and people living in the rural communities, as a large portion of the fruit pits, nuts, and nut shells available would necessarily come from the country. It was important, therefore, that the cooperation of the Department of Agriculture be secured, as it possessed a machinery with which we could keep in touch with every rural community in the country.

"I wish to say that nowhere did the Gas Defense Division meet with a finer response to its requests for assistance in pushing the campaign than in the various divisions of the Department of Agriculture. Among those who were particularly helpful, rendering invaluable aid in interesting people in the campaign, are: Mr. C. A. Reed, Bureau of Plant Industry; Mr. O. H. Benson, in charge of Boys' and Girls' Club Work, and Mr. G. R. Simcox, his assistant; Messrs. L. A. Clinton, C. B. Smith, and Bradford Knapp, of the States Relations Service; Mr. J. H. Shrader, Bureau of Plant Industry. I wish to express my most sincere appreciation of the work these gentlemen have done, and I would thank you to convey this expression of thanks to them and to the others who had a part."

The following reply was sent to Secretary Baker by Secretary Houston:

"I greatly appreciate your letter of November 30 regarding the efforts of the department to assist the Gas Defense Division of the Chemical Warfare Service in connection with its campaign to collect fruit pits and nut shells. It has been a pleasure to cooperate with the War Department in this undertaking and I am glad to know that the officers of the department were able to render such useful service. I am taking the liberty of bringing your letter to the attention of the gentlemen mentioned in your note."

Agricultural Agents in 80 Per Cent of Farming Centers in North and West

The number of county agents in the 33 northern and western States increased from 544 on June 30, 1917, to 1,103 on June 30, 1918. On this date the following States had completed their quotas for agents: New Hampshire, Vermont, Connecticut, Massachusetts, Rhode Island, Delaware, Iowa, Minnesota, and New York.

Eighty per cent of the agricultural counties in the northern and western States are now reached by county or district agents.

Controlling Cucumber Diseases by Seed Treatment and Crop Rotation

Simple and important methods of controlling two cucumber diseases are the use of disease-free seed and rotation of crops. The results of recent investigations are published in an article on the cucumber angular leaf spot disease in the Journal of Agricultural Research and in Department of Agriculture Bulletin 727 on the anthracnose disease of vine crops.

These diseases overwinter both in the fields where diseased crops are grown and on the seed saved from such fields.

Should Treat Seed Now.

Disease-free seed can be secured by soaking them for five minutes in a 1 to 1,000 solution of corrosive sublimate and then washing 15 minutes in running water. The germination is not injured by this treatment.

Seed treatment can be done most advantageously and with the smallest outlay of time and labor by commercial seed dealers, seed growers, pickle companies, or other wholesale seed handlers while the seed are still in large quantities, and before they have been distributed to retailers and growers.

Seed Treatment Simple.

Seed treatment is a comparatively simple operation and can be done in storage houses if running water is at hand.

Caution.—The highly poisonous nature of corrosive sublimate (mercuric chloride) should be kept in mind throughout the entire process of seed treatment.

In practice the following procedure has been found advisable. In order to dissolve the mercuric chloride rapidly an equal quantity of ammonium chloride should be used. Purchase 1 pound each of mercuric chloride and ammonium chloride for every 500 pounds of seed to be treated. Make up a concentrated stock solution of a strength of 1 to 20 by dissolving 1 pound of each in 2½ gallons of water. This stock solution is diluted to 1 to 1,000 by adding 2 quarts to 24½ gallons of water. Stir thoroughly before using. Metal containers can not be used for the mercuric chloride solution. In making up the stock solutions use graniteware measures and wooden pails; for the treatment use barrels.

Immersing the Seed.

Place seed in loosely woven bags, 50 pounds in each. The bags should not be over three-quarters full, to allow for swelling of the seed and to facilitate stirring. Immerse the bag of seed in 25 gallons of the 1 to 1,000 bichloride solution and agitate vigorously to secure thorough wetting of the seed. Remove the bag promptly at the end of five minutes and immerse at once in running water in a barrel and stir thoroughly. Wash about 15 minutes. Dry the seed as rapidly as possible. Forced drying by an air blast is much to be desired.

The bichloride solution may be used only twice, since its strength is reduced by use. Make up a fresh dilution from the stock solution for every two bags of seed.

Guard against reinfection of the treated seed. Bags to be used for treated seed should be soaked in the 1 to 1,000 bichloride solution for at least five minutes, rinsed, and dried. This can be done most readily by using these bags for the original seed treatment, being careful that the entire bag is immersed.

Rotate Crops.

Growers should never plant cucumbers, cantaloupes, or watermelons on fields where the anthracnose or the angular leaf-spot disease occurred on any vine crops the previous year or on immediately adjacent land. Select new fields or land in crops other than vine crops the year before, and thus reduce the chance of disease losses.

COTTAGE CHEESE IN NEW WAYS.

Both city and country housewives have become familiar with the value of cottage cheese as a meat substitute. If your family is tired of your old recipes, in which the cheese is an ingredient, why not try some new approved ones? "Cottage Cheese and Its Uses," Office of the Secretary Circular 109, issued by the Department of Agriculture, will be sent to anyone who writes for it.

FARMERS APPROVE COUNTY AGENT WORK.

"I do not think that any county can well afford to do without an agent," is the tribute a live Mississippi farmer, near Hattiesburg, pays his county agent in a recent letter to the United States Department of Agriculture. He was referring particularly to the assistance rendered by this agent and his assistant in securing all kinds of seed, improved stock, and farm implements; marketing the farmers' produce; getting their grain thrashed, so that there would be plenty of home-grown seed; securing labor to gather the crops; and obtaining reduced prices on fertilizers.

"The agent can do so much for the farmer," he writes, "because no one farmer can afford to work up these things for the community and in that way reach the entire county and get united effort in buying, selling, shipping, and aynthing that needs cooperative effort."

Farmers near Hattiesburg are said formerly to have been prejudiced against county agents and demonstration work, but they have seen the results obtained by following the methods advocated by them and are convinced of their value.

Department Issues First Report on Active and Idle Wool Machinery

Nearly 80 per cent of all looms making wool goods in the United States were in operation on November 1, 1918, while 89 per cent of woolen cards, 76 per cent of combs, 88 per cent of woolen spindles, and 70 per cent of worsted spindles were also in operation on that date. These figures are furnished in the first "Active and Idle Wool Machinery Report" just issued by the Bureau of Markets, United States Department of Agriculture.

The wool machinery working on Government orders on November 1 is given as 61 per cent of looms wider than 50 inches, 18 per cent of looms under 50 inches, 62 per cent of woolen cards, 68 per cent of combs, 63 per cent of woolen spindles, and 64 per cent of worsted spindles.

As an index to activities of the wool textile industry in the United States, the Bureau of Markets will issue monthly reports showing the machinery idle and in operation. These reports should indicate to the wool grower, say the wool-marketing specialists, the demand for wool from the manufacturers and thus serve as a guide to present and future trade prospects. Information contained in these monthly reports will be made available to farmers, who, it is pointed out, have never before had information regarding the scope of activity in the production of finished goods.

This report will be issued in addition to the monthly consumption report and quarterly wool stock report in an effort to bring out the main features which affect prices and the marketing of wool. The active and idle machinery report, it is stated, should serve as a barometer of wool-market conditions.

Good Construction and Operation Brings Safe Water from Cisterns

Nowithstanding the serious objections to cistern water for all household use, thoroughtly well-constructed, well-operated cisterns are a boon, and their more extensive use is urged in Farmers' Bulletin 941, "Water Systems for Farm Homes," recently published by the United States Department of Agriculture.

Vital features of a cistern from which the water supply is obtained, according to the bulletin, are absolute water-tightness, top, sides, and bottom, and close screening of inlet and waste pipes; provision for excluding from the cistern the first portion of each rainfall until the roof or other collecting area has become rinsed thoroughly; a first-class filter of clean, well-selected sand and thoroughly burned charcoal. The flow in the filter should be downward, and the top area of the filter bed and the rate of flow to the bed must be so harmonized and regulated that slow, effective filtration (not rapid straining) is secured. A waste pipe should be provided which removes surplus inflow from the bottom of the cistern, where impurities tend naturally to settle. Periodic and thorough cleaning of the cistern and filter is necessary. From time to time the clogged sand should be raked or removed from the filter and the dirty charcoal replaced.

Dosing Water Helps Little.

The practice of throwing charcoal into cisterns to absorb the odors of decaying organic matter is of little advantage, says the bulletin. Boiling cistern water, or "dosing" it with chemicals to sterilize it, although safe precautions, injure the wholesomeness of the water and should be regarded as emergency measures—never as suitable substitutes for the best possible construction and operation.

If rain water is filtered effectively the keeping qualities will be improved and large-sized cisterns may be used. That method of filtration which resembles most nearly the slow percolation of rainfall into the ground will give the greatest degree of purification. Such a filter can be constructed with a barrel or large galvanized-iron tank, placed above the ground so it can be easily cared for, and filled with some suitable filtering material. The water as it drains from the roof should pass through this material before it enters the cistern, the rate being kept down to one pint in four minutes (45 gallons in 24 hours) for each square foot of area in the filter bed.

Use of Filter Materials.

Sand is one of the best and most available filtering materials, and well-burned charcoal is most useful in removing color, taste, and odor. Fine sand removes minute particles to a greater extent than does coarse sand, but on the other hand it clogs more quickly. Crushed quartz and thoroughly clean pit or beach sand, such as is used in mixing mortar, are employed extensively. The size of the grains should be quite uniform and should be such that all could be sifted through holes made in a sheet of paper by a medium-sized awl or knitting needle. A depth of 2 feet of carefully selected sand free from clay, loam, and vegetable matter, is preferable to a greater depth of sand of indifferent quality. As the thin surface layer becomes clogged with continued use, it may be scratched or furrowed or a half-inch or so may be scraped off with a trowel, until eventually the bed is reduced to 12 or 15 inches in thickness. The sand removed either should be washed and returned, or be replaced with new sand. It is advantageous to place about 6 inches of well-burned charcoal under the 2-foot bed of sand. Triple-burned, triple-ground wood charcoal, the pieces averaging the size of wheat grains, has given excellent results and costs normally about 60 cents a bushel, in sacks, at kilns in Eastern States.

HOME-GROWN FIGS MAY SUPPLANT GREAT QUANTITIES NOW IMPORTED

It is likely that before many years the 15,000,000 or 16,000,000 pounds of figs annually imported from Smyrna will be supplanted by the home-grown product, says the United States Department of Agriculture in Bulletin 732, recently issued. The area in the Southwestern States and in California is equally as well adapted to the fig industry, the bulletin adds, as is the Meander Valley of Asia Minor, and is more than extensive enough to produce many times the quantity imported into this country.

The annual production of Smyrna figs in California, which is almost the total yield of this country is not far from 2,000 tons, but within a few years the production likely will be greatly increased, for it is estimated that since the importations were cut off as a result of the war 10,000 acres of Smyrna fig trees have been planted in the central San Joaquin Valley. When these large plantings come into bearing this country will be independent of importations of this most wholesome sugar-saving fruit, and, it is believed, dried figs by the carload will be as evident in commercial movements as raisins are at the present time.

Two Varieties Grown.

Two kinds of cultivated figs are commonly grown in this country—the caprified or Smyrna figs, and the common cultivated figs which do not require caprification. Until recent years only varieties of the latter kind were successfully grown in America. The figs of the Smyrna type do not set fruit unless the flowers are pollinated—that is, unless the figs when setting are caprified; and this necessitates the simultaneous culture of the caprifig, the male form of the species, which harbors the fig insect and bears the pollen necessary to fertilize figs of the Smyrna type.

About one-third of the production of figs in California is of the Smyrna type and the remainder chiefly Adriatic and Mission, but the first-mentioned type are being planted almost exclusively now. One prominent California grower who has orchards of both Smyrna and Adriatic figs finds that by a liberal supply of caprifigs he gets a ton to the acre more from the Smyrna than from the other variety, while the former sells for about double the price of the latter. A 4-year-old Smyrna fig orchard should produce sufficient fruit to pay all the expenses of cultivation, and from that time will yield increasing profits indefinitely, according to the bulletin.

No Obstacle in South.

From investigations conducted by the department, it is apparent that there exists no climatic obstacle to the growing of Smyrna figs in the Southern States. Experiments, however, must be carried on for a period of years before it can be certain that the fig insect will perpetuate itself in this region. Moreover, the production of dry figs, the form in which the Smyrna fig is chiefly marketed, will always be limited to regions practically rainless at the time fruit is maturing. It is possible, however, that figs of the Smyrna type may be successfully grown in the Southeastern States for marketing in the fresh state. Many varieties of Adriatic figs are already successfully cultivated throughout the great Coastal Plain from Texas to the Carolinas, chiefly for home-grown consumption, canning, and preserving. The Smyrna fig which is now gaining such favor on the Pacific Coast is equally as frost resistant as most of the varieties now successfully grown in the Southern States.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Million Farmers Back County Agents.

At present more than 1,000,000 farmers are members of organizations assisting the county agent in his work. Through these organizations the American farmer and his family are now in close personal touch with a large corps of well-trained men and women so linked with Federal and State institutions for the promotion of agriculture that farming people can readily avail themselves of the results of scientific research and practical experience the world over to aid them in their work on the farm and their life in the home.

How One Honor Medal Was Won.

Ethel Lyngberg, 15, who lives in Salt Lake County, Utah, will have pinned on her the four-leaf clover medal which is awarded members of boys' and girls' clubs who for four consecutive years have done successful work in their clubs. In the past season, beside attending high school, Ethel plowed 60 acres, and harrowed and leveled it for wheat, alfalfa, and beets, and in season helped her father cut hay. She also assisted with irrigation, in her father's absence, turning the water on and off alone. She canned 660 quarts of fruits and vegetables and dried many pounds. Meanwhile, she was baking the bread for the family. One hundred chickens grew to maturity during the summer, under her care. In her spare moments, she has knitted socks for soldiers. When she finishes high school, Ethel plans to attend a college where she may study agriculture and home economics.

Utah Hog Production Helped.

Hog production in Utah recently has received much stimulus because small farmers, especially those some distance from railroads, have been able to get their hogs to market at greatly reduced expense through cooperative shipping. More than 100 farmers shipped 18 carloads to the North Salt Lake stock yards in three months. The hogs came from sections 35 to 90 miles from a railroad shipping point, and in some instances were brought in wagons by the growers to a central point where automobile trucks were used to transport them to the shipping point. Others were shipped by local freight to a central point where carloads were assembled. Each lot of hogs was marked by clipping the hair, and was yarded, fed, and sold separately. Shipping expense was prorated, and each owner received an individual check. The plan has not only increased shipments but improved the quality of the offerings, the Bureau of Markets reports.

Seek Disease-Free Alfalfa Strains.

The "yellowing" of alfalfa, a disease which has become common in many localities where alfalfa is grown and which is proving a serious menace to this valuable crop, is being studied by specialists of the United States Department of Agriculture with a view of developing strains that are resistant to the disease. Seed of alfalfa hybrids which have shown resistant qualities has been sown in the West with a view of increasing the stocks to the point where field tests can be made.

More Wilt-Resistant Cotton Planted.

Demonstrations conducted by the United States Department of Agriculture on the control of cotton wilt, which have been in progress for several years, resulted last year in the planting of a larger acreage of wilt-resistant cotton than ever before with an actual saving greatly in excess of that of any previous year. The great possibilities of this work is shown by reports from two cotton planters in South Carolina who state that their savings last year through growing wilt-resistant cotton was approximately $115,000.

Improving Dairy Work in Wisconsin.

To develop better dairy herds and at the same time save the calves is the plan of the dairymen of Wisconsin. In this endeavor, as in other pursuits allied with agricultural stimulation, the interest of boys' and girls' club members is being enlisted. Where clubs are formed consisting of not less than five members, the dairymen are helping these youngsters to buy their stock.

A great improvement was noted in the exhibit at the Wisconsin State Fair the past season. Sixty boys and girls from different parts of the State had unusually fine dairy exhibits in competition, the entrants being selected from hundreds of club members in Wisconsin, reports a field agent of the States Relations Service.

Negro Agents Assist Food Production.

One hundred and forty-two negro men agents and 194 negro women agents of the United States Department of Agriculture and the State Agricultural Colleges, were at work in the Southern States during the fiscal year ending June 30, 1918. These agents were very successful in stimulating the growing of more food crops, giving special attention to home gardens and the canning and drying of fruits and vegetables for home use. They also materially assisted in helping in the labor problem by urging negroes on farms to work six days in the week.

Food Sales in Open Air.

A study club in Barnstable County, Mass., formed by the home demonstration agent under the supervision of the Department of Agriculture in connection with the State agricultural college at Amherst, held all summer food exhibits or food sales in front of the town hall at Provincetown. To attract and increase interest demonstrations and lectures have been given. Recipes for the conservation of foods on exhibit also have been given out.

Agents Work for Better Seed Corn.

Realizing the importance of good seed corn as an essential in increasing production, and knowing that fall-selected seed corn is best, county agents have directed considerable effort in seed-corn selection and testing campaigns. Three hundred and fifty-four agents assisted 63,813 farmers last year in the 33 Northern and Western States in fall-selecting seed corn, and more than a million additional acres were planted with fall-selected seed corn resulting from work of the agents during the previous fall. Assistance was given to 36,538 farmers in the testing of seed corn, resulting in 946,563 additional acres being planted with tested seed. The agents conducted extension campaigns to encourage seed corn selectiton in the fall and seed-corn testing in Illinois, Indiana, Iowa, Michigan, and Pennsylvania.

County Agents' Efforts Save Cattle.

Through the cooperative efforts of the county agents in the Southern and South-

western States this year hundreds of thousands of valuable cattle were saved. The great cattle ranges in western Texas suffered a severe drought iu 1917. In 1918 the drought continued with increasing iutensity. Two successive years with a limited amount of rainfall left the range practically barren, and the cattle roamed about them in a starving condition. But in the Southeastern States conditions were different. There was abundance of feed and pasture and few cattle to utilize it. Through cooperation of the Bureau of Animal Industry and the Bureau of Markets of the United States Departmeut of Agriculture, county agents in Texas began to get in touch with the county agents iu the Southeastern States where feed was plentiful and assisted farmers in regions of heavy crop production to obtain cattle from the drought-stricken regions of Texas. During the past year about 300,000 head were transported, largely through the efforts of the county agents. This service not only saved the Texas cattlemen from financial loss and assisted in developing a profitable and much-needed branch of agriculture in the Southeastern States, but helped materially in couserving the Nation's meat supply at a critical time.

Area in Grain Sorghum Increasing.

Grain sorghum area increased from 3,944,000 acres in 1916 to 5,153,000 in 1917, or more than 30 per cent, while the production increased from 53,858,000 to 75,866,000 bushels, or over 40 per cent. This largely increased quantity of grain was consumed through the ordinary channels without any undue drop in price. Farmers report excellent results from Dwarf milo and Dawn kafir, the varieties bred and distributed by the United States Department of Agriculture, and the demand for seed increases. In parts of Arizona and California Dwarf milo is grown successfully on irrigated land after barley is harvested, thus enabling the grower to produce two grain crops on the same laud in one year.

Cooperate in Spraying Potatoes.

Community potato sprayiug has been developed this season in Rutlaud County, N. J. Four power sprayers were purchased through the farm bureau to carry on the work. Two carts were operated by a farmer who was paid for his time by the hour, one cart was for use on au individual farm, while the fourth was shared by two farmers. Farmers in Rutland County took a new interest in potato spraying after the installation of community sprayers and have reaped the benefit in a better crop of potatoes.

Results of Barberry Campaign.

The campaign for the coutrol of stem-rust of wheat through the eradication of the common barberry has aroused a widespread and effective sentiment against the shrub. This has resulted in the actual removal of the following estimated perceutages of the plauts located by a survey conducted by the United States Department of Agriculture: Northern Illinois, 60 per cent; Wisconsin, 90 per cent; Minnesota, 80 per cent; North Dakota, 90 per cent; South Dakota, 80 per cent; Nebraska, 75 per cent; aud Iowa, 75 per cent. The work has been well begun in the States adjoining those named. Safety from stem-rust of wheat lies only in the complete eradication of the common barberry plant, specialists of the department say.

How Potato Disease Control Paid.

Demonstrations of methods of control of sweet potato disease in Accomac County, Va., last year resulted in a benefit to this county alone of about $100,000 due to the application of the control methods. Special efforts made by the United States Department of Agriculture during the bedding season last spriug resulted in the location and distribution of a considerably larger quantity of disease-free roots than otherwise have been used for bedding purposes and during the harvest season a campaign was conducted for the selection of disease-free seed stock iu the field and in the storing of sweet potatoes under proper conditions.

Spoiled Potatoes Good for Starch.

Starch iu potatoes is not destroyed by the common decay-producing fungi or by freezing. It has been found in recent studies couducted by the United States Department of Agriculture in laboratory tests that it is possible to recover most of the starch from frozen and rotten potatoes, which lead specialists of the departmeit to suggest that an attempt should be made to salvage the great quanties of spoiled stock now rejected and dumped on the terminal markets.

ADVICE WORTH MANY DOLLARS.

Because he had not planted the proper kind of cotton, the crop of A. C. Watson, of Orangeburg, S. C., was a failure for several reasons.

"My loss would average arouud 50 per cent," reports this farmer to the United States Department of Agriculture. This year he was advised by his county agent to plant a wilt-resistant variety. He did. This is the result, given in his own words:

"This year I made an average of a bale and a quarter to the acre. It is at least a 50 per cent increase in yield over previous years, when I planted seed varieties that were not resistant; so you see, when you consider the fact that I plant about 200 acres in cotton, your advice to me was worth many dollars."

To Purchase Additional Lands For Eastern National Forests.

The National Forest Reservation Commission has just approved for purchase 54,744 acres of land for national forests in the White Mountaius, Southern Appalachians, and Arkansas.

The largest tracts purchased are in Georgia, where the resumption of purchase work has been authorized by the commission. An aggregate area of 38,108 acres in Rabun, Union, and Townes Counties, scattered through 39 tracts, was approved for purchase at an average price of $7.22 per acre.

Iu Alabama, in Lawrence and Winston Counties, 5,159 acres were approved at an average price of $4.30; in North Carolina, in Macon and Buncombe Counties, 1,940 acres were approved at an average price of $4.30 an acre; in Virginia, in Augusta and Shenandoah Counties, 1,381 acres were approved at an average price of $4.36 an acre; in West Virginia, in Hardy County, 40 acres at an average price of $7 an acre; and in New Hampshire, iu Grafton aud Coos Counties, 9.04 acres at an average price of $6.68 an acre.

In Arkansas, 7,269 acres, located mainly in Polk, Pope, Johnson, and Garland Counties, were approved for purchase at an average price of $3.61 per acre.

To date the National Forest Reservation Commission has approved for purchase 1,702,534 acres for national forest purposes in the 17 areas of eastern national forests.

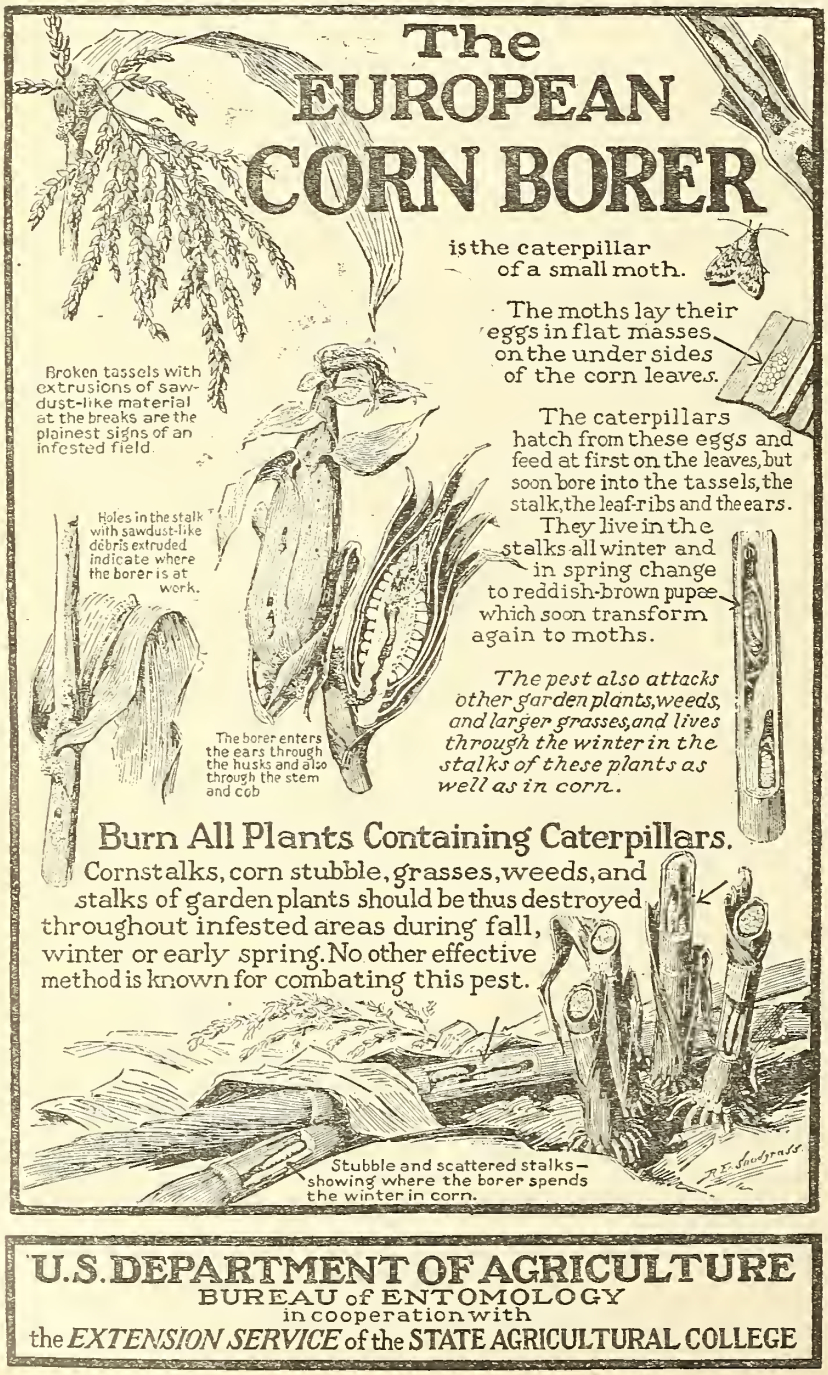
ERADICATING JAPANESE BEETLE.

Treatiug infested soil with sodium cyanid solution, plowing up breeding grounds, and keeping the insect away from roadsides by the use of kerosene oil and other means are methods being employed for the eradication of the Japanese beetle (*Popillia japonica*) by the Bureau of Entomology, United States Department of Agriculture. Direct measures against these beetles are taken by applying poisons as nearly as possible to the entire infested area, working from the outskirts of the area inward.

Recognizes Help Given by Films In Food Production Campaigns

In the annual report of the Secretary of Agriculture acknowledgment is made of the cooperation and valuable assistance given to the Government by the motion-picture industry in placing information and appeals of emergency character concerning food production and conservation and other vitally important subjects before patrons of motion-picture theaters. The Secretary also refers to the systematic development of the film work of the department under last year's appropriation, which carried the first definite allotment made for motion pictures in the Department of Agriculture.

"The dissemination of information by means of motion pictures," says the Secretary, "which hitherto has been conducted only on an experimental basis, was by action of Congress given a definite allotment of funds, which enabled the department to undertake the systematic development of this activity. Films prepared in the departments' laboratory were used very effectively in connection with its efforts to recruit farm labor, encourage the preservation of perishable fruits and vegetables, prevent forest fires, and stimulate agricultural production. They were shown, through the extension service, to approximately 500,000 people at demonstration meetings, county and State fairs, schools, churches, and municipal gatherings, and by arrangement with one of the commercial companies to about 4,000,000 people at motion-picture theaters. The film companies actively cooperated with the department and rendered valuable assistance by placing information and appeals of an emergency character before the patrons of the theaters served by them."



Packing in Ice Needed to Avoid Spoilage of Rabbits in Shipments

Large numbers of the rabbits received at city markets are being condemned by health authorities on account of spoilage through improper packing for shipment, according to reports to the United States Department of Agriculture. The exact percentage of rabbits condemned is not known, but in one shipment recently received in Washington, D. C., consisting of 80 rabbits, packed in a box, all but 5 were condemned. On the day this shipment was received rabbits were selling for $1 each on the Washington market.

The unusually warm weather that has prevailed for several weeks, together with improper packing for shipment, is held responsible for the loss of a great portion of this food. During warm weather, particularly if the trip to market is long, rabbits can not be kept in suitable condition unless packed in ice, say specialists of the United States Department of Agriculture. The shipper should be careful, if the rabbits are not packed in ice, not to pack them while they are wet, nor should the layers in the package be divided by paper or other packing, as such layers of packing prevent proper ventilation. No matter what method of packing is used, the intestines should be drawn from rabbits as soon as they are killed. If this is done, and the shipping containers are properly iced or ventilated, and the quickest available means of transportation is used, much of the waste now occurring can be prevented.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JANUARY 1, 1919 No. 22

Farmers by Thousands Organize to Strengthen U. S. Agriculture

Many Sections Report Advances in Campaign to Support Extension Work

Preparing for Great Food-Raising Tasks of After the War—To Work for Better, Bigger Farming

"Strengthen agriculture's organizations for 1919."

This slogan has gone from Washington to every State—in preparation for the huge after-war tasks of American farmers—and reports of responses in every section of the country now are coming to the United States Department of Agriculture.

Tens of thousands of farmers are joining and making stronger the county councils of agriculture, county farm bureaus, and other local extension organizations that have come to hold a place of vital importance in the organized agriculture of America. No estimate as to the total membership, however, will be available until the new year is a few months old, for influenza and other causes are holding back the campaign in some States.

These local organizations of farmers occupy much the same relation to the counties as chambers of commerce occupy to cities. They plan for prosperous and balanced agriculture, introduce better farming methods, work for more and wider markets. They deal especially with the work of the cooperative agricultural extension agencies and are not intended to take the place of the existing farmers' organizations, with which they sustain many helpful and cordial relationships.

To Visit Every Farmer.

As an illustration of how important the farm bureau plan has become, and how the campaign has been pushed, consider West Virginia—the "little mountain State," where farming has been overshadowed by coal mining and oil and gas production. The State University at Morgantown, working with the Federal department and through the county agents and other members of the agricultural extension organization, launched a campaign with results that are considered truly notable. The results up to December 10 were told in the following telegram from the State director of extension to the Secretary of Agriculture:

"Answering your appeal of November 13, to continue our state of preparedness and to strengthen the foundation of our agriculture, the fifty farm bureaus of West Virginia during the week just closed have by personal visitation—public meetings being inadvisable, because of influenza—added 10,000 names to the list of farmers pledged to cooperate with the Department of Agriculture and the College of Agriculture in carrying out the food production program for 1919. The campaign will continue until every farmer in the State has been visited."

In Other States.

Only in West Virginia was the farm bureau campaign waged intensively for a

(*Continued on page 5.*)

WHAT SOME STATES ARE DOING.

New York.—60,000 farm bureau members expected when campaign results are compiled.

Ohio.—Farm bureau membership appears increased by 30,000.

West Virginia.—10,000 farmers pledged to cooperate; every farmer in the State to be visited.

Minnesota.—Total membership expected to be 50,000.

New Hampshire.—2,000 new members, with campaign uncompleted.

Oklahoma.—Federation of 15 State organizations and all county agricultural associations to support county-agent work.

DEPARTMENT OFFERS NITRATE TO FARMERS AT COST PRICE

Buyers of Fertilizer Must Make Deposit With Designated Agency

Charge to Be $81 a Short Ton, F. O. B. Cars at Loading Point—County Distribution Plan to Be Followed

The Secretary of Agriculture has announced that under the authority of the food-control act and subsequent legislation the Department of Agriculture during the coming season will offer nitrate of soda for sale to farmers for fertilizer use. The nitrate will be sold for cash at cost. The price to the farmers will be $81 a short ton, free on board cars at the loading point or port. In addition, the farmer will have to pay the freight charges to unloading point and any incidental expenses that he may himself incur in connection with the delivery of the nitrate.

To Use Last Year's Plan

The plan used in the sale and distribution of the nitrate will follow in a general way last year's plan. State directors of extension, county agricultural agents, and nitrate committees, composed of local business men, will direct farmers in filing their applications. Application blanks to be used by farmers will be sent to county agents and the members of local committees at an early date. Under the law the nitrate will be sold only for cash, and the farmer will be required to deposit the money covering the cost of the nitrate for which he applies with the local bank, association, or individual to be designated by the department.

May Allot Supply

In practically all counties, distribution of the nitrate will be made through county distributors. If the quantity of nitrate that can be secured will fill all orders, each farmer will be allotted the amount applied for; otherwise it will be necessary to allot the nitrate proportionately

(*Continued on page 3.*)

A great year and a great big job for American agriculture begins to-day—Are you ready?

97080°—19

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems that Will Claim the Attention of American Farmers During the Next Few Weeks

NORTH AND WEST

The office of extension work North and West offers the following suggestions on matters about which farmers of the Eastern, North Central, and Western States will be thinking a good deal during January and early February:

WINTER READING FOR FARMERS.

Many of the plans for the farmer's winter reading seem to imply that the farmer has plenty of time for this purpose. Those who have tried it know that time is somewhat limited on the farm, even in winter; also that after hard work out of doors the reading matter must be brief, directly to the point, and applicable to the farm subjects in which the reader is most interested, to prevent his going to sleep. Fortunately such books have been written on some special lines of farming, and county agents will usually be able to recommend suitable ones for particular localities.

A couple of good books read during the winter, or even one, on an important line of business conducted on the farm, with a few well-chosen bulletins and an agricultural paper or two, will be of much service. The books should be of the kind that one will want to study and will find valuable enough to buy, so that they may be marked and referred to frequently as time goes on, and as they apply to his personal farm practice.

For most farmers short bulletins on special subjects, as the Farmers' Bulletins of the United States Department of Agriculture and similar bulletins by the State agricultural colleges and experiment stations, are of great value and should be accumulated and kept where they can be read during leisure periods and referred to at any time when special information is needed.

FARM BUREAUS AND MARKETING.

A leading feature of every farm bureau's program of work in 1919 will be plans for adequate organization and cooperation in marketing farm products. Special attention necessarily will be given to these problems if farmers are to secure returns sufficient to cover the high cost of production during the period of decreasing prices likely to follow the war.

Fortunately, the farmers in their farm bureaus and similar extension organizations throughout the country have an agency for effective organized cooperation with each other and with the Federal department of agriculture and State governments in studying problems of production and marketing which will greatly aid in meeting the situation. At this time, therefore, no effort should be spared by farmers to strengthen these county farm bureaus and other county extension organizations for the efficient handling of problems of agricultural production and marketing, and for availing themselves of the help of the State and Federal Governments along both of these lines.

INTEREST IN HOME GARDENS INCREASING.

Fifteen of the larger cities in Indiana have already organized for the city garden movement during the season of 1919. Indiana did a good piece of work last year in the matter of food production in city back yards and on vacant lots; and the State and local authorities are now starting their campaign with a view to doubling these results this year.

The production of food is just as essential for 1919 as it was last year, and the organization work can not be started too soon. Indiana was not the only State in the Union that went "over the top" in this line of production, and, while no definite figures are available, the results obtained were far beyond expectation.

Land that has been in cultivation two or more years will give better results if proper methods of maintaining soil fertility are followed. The city gardener should secure all available manure and other fertilizer and apply it to his land during the winter season. If possible the plowing or spading should be done before the ground freezes and the soil allowed to lie exposed to the weather during the winter.

It is highly important, however, for the success of the movement in the cities to provide first the proper organization and leadership to develop the garden work.

THE FARMER'S INVENTORY.

The inventory is an essential part of an accounting system for the farm. The beginning of the year is the proper time

(*Continued on page 14.*)

IN THE SOUTH

The following suggestions are from the Office of Extension Work South:

TAKE AN INVENTORY.

Every farmer should ascertain at the beginning of the year just where he stands financially. During the year just closed property has been bought, sold, and exchanged. It is only by making an inventory that the farmer is able to determine whether he is worth more or less than he was a year ago. He should know whether he is conducting a losing or paying business and this can be determined only by comparing each year's possessions with those of the year before.

KEEP ACCOUNTS.

Farming is a business the same as banking or running a mercantile establishment. There are products to be sold and articles to be bought. The keeping of a record of these and determining the relation of the outgo to the income are important considerations on every farm. The farmer should know what his income is and just how he is disposing of it. He can know this only by keeping books and the first of the new year is the proper time to begin.

SHORT COURSES.

During the month of January many of the agricultural colleges are offering short courses, planned especially for farmers. These courses should be taken advantage of by every farmer who feels that he is at all financially able to make an investment in professionl improvement. The demand the times and world conditions are making of the farmer, as well as his own personal interests, makes it necessary for him to equip himself professionally. Not being able to turn aside from his business to pursue regular courses in the different phases of agriculture, the farmer should certainly avail himself of the opportunities offered by the short courses.

PURCHASE SEED.

The farmer's attention is called again to the importance and necessity of looking after the seed supply for spring crops. Orders should be sent to the seedsman at

once. Those in need of garden or truck crop seed can not afford to lose any time in placing orders. The most essential factor in successful trucking is the best seed, planted at the earliest possible safe date.

The buying of clover seed may well be attended to during January, and it is advisable to secure samples and prices now. Seed, likely, will not be any cheaper in the spring. It is time now to determine how many acres will be seeded to clover and whether or not alsike will be mixed with the red.

ROUNDING UP ODD JOBS.

The really thrifty and industrious farmer never lacks for work, even in January. Ordinarily there is a greater number of days unfit for field work than in any other month of the year. But in the Southern States, especially along the Gulf coast section, there is rarely a day that some outside work can not be done. There is much need for repair work on fences, barns, tenant houses, etc., clearing of land, mending of old and constructing of new terraces, oiling and repairing of tools, implements, and harness, and various other odds and ends that can be taken care of and that will greatly help when the real spring work comes on. January is a good time to get out fence posts for use next summer and fall. It is well known that all posts should be seasoned before using. When necessary to use posts made from inferior timbers it pays to treat them before setting them. This treatment can be given now, provided the posts are seasoned or dry enough to take the treatment. For full information in regard to treatment of fence posts and other timbers apply to the Forest Service, United States Department of Agriculture.

SAVE MANURE.

There has never been a time when the making, saving, and utilizing of all sorts of farm manure was so essential. All fertilizing material is high in price, and some kinds can not be had in sufficient quantities at all. Farm manure may be used for a number of purposes to a much greater advantage than commercial fertilizers. The total quantity of manure can be greatly increased by keeping livestock sheds and stables well bedded with straw, leaves, and other refuse about the farm.

SUGGESTIONS FOR SAVING FEED.

The type of steers used in the feed lot and not the breed largely determines the success of feeding operations. The type of steer that makes the best use of the feeds consumed usually puts on the most meat in the region of the valuable cuts.

In fattening steers it is advisable to use a variety of feeds in the ration. Sudden changes in the ration, either in quantity, quality, or form of feeds used, should not be made. To do so not only wastes feed, but may seriously affect the health of the animal. The ration used must pay expenses before it can begin to give returns on the investment. A means of cutting down expenses is to limit the unnecessary feeding operations. Feed the steers in groups rather than in stalls. The feed should not be cut, shredded, or ground when they give practically as good results without such preparation. Broken ear corn in the ration, when the cattle are followed by hogs, gives better returns than when fed as ground corn.

UTILIZE ROUGH FEED WITH BEEF CATTLE.

Every ton of straw, every ton of corn stover, and every ton of coarse, cheap hay produced on the farms should pass through the cattle or to be used as bedding after having been offered to them. Beef cattle, especially steers and dry cows that are being wintered, may be given cheaper feeds than grain, such as well-cured corn stover, straw, and hay, with 1 or 2 pounds of cottonseed meal. They should be given all of such roughages, however, that they will consume with a relish. Breeding cows and young growing animals should be given sufficient feed to enable them to make a satisfactory growth. Most of the feed is wasted when given to a young animal that does not make some growth.

GIVE BREEDING ANIMALS MORE FEED.

It is now the time of the year that breeding animals should receive more feed and special care and attention than is usually given them. The herd bull should not be allowed to run with the herd during the winter, but be kept in a separate box stall with outside paddock for exercise. If inclined to be restless a few dry cows or heifers should be kept with him. The bull should receive sufficient nutritious feeds to keep him in good breeding condition. Unless silage is provided, a small allowance of grain should be fed in addition to the roughages.

The breeding cows, especially those bred to drop calves in the spring, should receive enough feed to keep them in good physical condition. Silage and nutritious hays, such as clover, alfalfa, and other legumes, should be used for the cows and calves and the coarse, cheap roughages utilized for wintering dry cows, stockers, and feeders. The breeding cow, if only in moderate condition, should also have a small amount of grain. Unless legume hay is available, 1 or 2 pounds of cottonseed meal may be used to good advantage. Protection from cold and wet weather should also be provided, especially at time of calving. When the calf is old enough to eat, see that it gets sufficient feed to make a satisfactory growth. To withhold feed from a growing calf is to waste it. The calf that lies down at night without having made some gain has largely wasted the feed that was given it.

USE CARE IN REMOVING SILAGE.

Considerable silage is frequently wasted or its feeding value impaired by improperly removing it from the silo. No more silage should be removed from the surface than is required for one feeding or, when weather conditions will permit, for one day at most. In removing silage from the silo, about 2 inches should be removed on the average from the entire surface, loosening no more silage than is removed. The surface should be kept level and compact at all times.

If unsatisfactory results are obtained from feeding silage, it is usually from improperly feeding a good product or from feeding moldy, sour, or frozen silage.

MAKE SURE WATER SUPPLY IS SAFE.

Water for domestic use should be clear, lustrous, odorless, colorless, wholesome, soft, neither strongly acid nor alkaline, and its temperature for general farm purposes should be about 50° F. These characteristics, however, must never be deemed proof of purity, says Farmers' Bulletin 941, Water Systems for Farm Homes, for a glass of water may possess them all and yet contain millions of disease-producing germs. Any suspicious water should be rejected until both the water and the surroundings where it is obtained are passed upon by competent sanitation authority, generally the State board of health.

DEPARTMENT OFFERS NITRATE TO FARMERS AT COST PRICE

(Continued from page 1.)

to those applying for it, so that all may participate on equal terms in its distribution. Arrangements have been made to secure a large quantity of nitrate, and unless the demands should prove very much greater than anticipated there will be enough nitrate to supply all reasonable requirements. The distribution will be handled, as last year, through the Bureau of Markets.

HOW THEY KEEP HELP ON THEIR FARMS

Indiana and Ohio Farmers Tell Department of Agriculture Investigator of Methods That Have Succeeded.

There is one major rule for keeping help on farms—the Golden Rule.

That stands out definitely in reports to the Department of Agriculture from an investigator who has visited 37 farms in Indiana and Ohio to find how farmers have kept their workers during the period of intense labor shortage, and why the same men have been employed on these farms for 10, 15, and even 25 years.

"I deal with my men as I would want to be treated." This statement is credited to farmers in many of the reports and is indicated in others. The farmers who have kept their help have made life on the farm so livable that their workers were not lured away by the attractions of the city nor by high wages offered by other industries.

It is also notable that practically without exception the farmers who have little trouble in keeping the same help year in and year out are general farmers, growing live stock as well as raising grain. The live stock keeps the men busy when crops do not call for attention, and makes it profitable for the farmer to pay steady wages throughout the year.

Of course, there are two sides to the story. Not only is it shown that the farmer must do his part, but it is just as plain that the hired man has definite duties to perform. The reports emphasize that teamwork and pleasant relations on the farm mean real efficiency. Married workers, paid good living wages and supplied with a house, a garden, and other conveniences, seem to be the ideal helpers where the farmer himself can not conduct his own operations.

Here is a report from one of the farms visited by the Department of Agriculture investigator:

On an Indiana Farm

This is a 320-acre grain and stock farm in Madison County, Ind. The principal crops are corn, wheat, rye, and clover. This farmer hogs off from 30 to 40 acres of corn each fall, uses rye for fall, winter, and early spring pasture, pastures from 30 to 40 acres of clover each year with cattle and hogs, and feeds corn, corn silage, and clover hay, often buying grain from neighbors and purchasing hogs and cattle to feed.

He keeps from 8 to 15 brood sows, raising 2 litters a year, raises an average of 7 to 8 pigs per sow per litter, and often buys from 30 to 40 shoats each year. He buys 1 to 2 carloads of steers each year to put in his feed lot, and raises from 8 to 10 calves each year from stock and milk cows.

His live-stock operations are conducted so that there is a minimum of labor expended during the busy season and so that profitable employment is furnished for labor during the winter months.

His buildings are centrally located and handy to the fields. The silo and arrangement of lots and sheds eliminate steps in feeding and caring for stock.

Windmills and gasoline engines furnish power for pumping, wood-sawing, grainding, and other chores. An acetylene plant is used for lighting. By using a tractor this man figures he supplants from three to four horses. Both the farmer and his hired man operate the tractor successfully. He keeps 12 horses on the farm and three of these are brood mares, raising from two to three colts each year. All horses are of draft type. Two mules are kept to do heavy work. He prefers mares for farm work and finds hands are successful with mares.

Work on this farm is planned to increase the work done by one man and to eliminate horse power if possible. Such tools as the hay loader, tandem disk, two-row cultivator, gang plow, sulkies, big harrows and rollers, 8-foot binder, 7-foot mower, and manure spreader are in the equipment. This farmer also has lightened the work of his wife by instaling a furnace, cement walks, running water for kitchen and bath, gas for lighting and cooking, and a power washing machine.

His present hand, who has been with him four years, is a married man and is furnished a good four-room house. The wage is $25 a month straight time the year round. In addition the hand receives one-fourth acre for garden and truck, all the chickens he cares to raise, feed for one cow and one horse, 400 pounds of hogs, and all the fruit and potatoes he needs for his family's use from the farm orchard and a common potato patch. The farmer gives his man $50 each Christmas.

When asked how he seemed to be able to hold help so well this farmer said:

"We have never had a word or fuss. I find my hand thoroughly reliable at all times. I follow the Golden Rule with my help. They never have trouble as long as they work steadily and carry their share of the load. Good living conditions and good teams and tools help in making satisfied help. One must take pride in his farm and put this same spirit in the man. Keep him employed at all times and cut out drudgery where possible. Until I changed from grain to stock farming I had trouble keeping good help."

Extra help is employed to the equivalent of a man for two months. The nearby city industries have not greatly affected the supply of this labor. Such hands are being paid at the rate of $2 to $3 a day and are boarded by the farmer. They must make a place for themselves in the home and in the community and are treated as one of the family. This extra help is recruited in small towns and the neighborhood. The neighbors cooperate well in thrashing, silo filling, shredding, harvest, clover hulling, and other work.

On an Ohio Farm

This is a 160-acre stock and grain farm near a town of 4,000 people in Preble County, Ohio. The main crops are corn, wheat, and clover.

The farmer pastures 30 acres of clover and eight acres of blue grass with cattle and hogs. He hogs off from eight to 20 acres of corn. He also pastures some hogs on the alfalfa, besides making hay.

Twenty gilts farrow in March and April and ten in June. The gilts are bred and fattened and marketed after raising pigs. Five or six pigs is the average number raised per sow. Three carloads of fat hogs are marketed each year. Self-feeders have proved their worth in pork production and have been found great labor savers. About one-half carload of cattle are fed during the winter months.

KEEPING FARM HELP.

The Department of Agriculture recently sent an investigator to learn from farmers how they have been successful in retaining help on their farms—not only during the war period but in ordinary times.

A number of the stories told to the investigator will be printed in the Weekly News Letter, with the expectation that they will be of help to other farmers in solving the labor problem. The first few will deal with farms in Indiana and Ohio. Stories from other sections of the country are to follow.

There are eight work horses on this farm, all of which are of the draft type. Two of this number are mares from which one or two colts are raised each year. This man relies on geldings mostly for the heavy farm work.

Among big tools found here are the manure spreader, tandem disk, two-row corn plow, sulky plow, 7-foot binder and 6-foot mower. A gas engine, windpump, and electric motor power take care of the water supply. The modern home, recently built, is equipped with a furnace, running water in kitchen and bath, electric lights, iron, washer, and cleaner. A coal oil stove is used in the kitchen.

The buildings are in the central group. Stock can be turned into eight acres of blue grass from the barn lot. This is handy and saves time in the morning in getting up the horses and cows.

The hand on this farm was a single man till last year. He had worked for this farmer three years up to that time. The old house was remodeled and he and the bride moved in. The house has six rooms. This hand gets $32.50 a month the year round, one-half acre for garden and truck, 300 pounds of pork on foot, all the chickens he cares to raise, is furnished with a cow, his horse is fed, he gets fuel wood, fruit, and gifts throughout the year to a total value of $15 to $20. This hand is a Virginian who is making good on this Ohio farm. The city industries and the draft made it cost more to get good help, but this farmer thought the farmers in his locality would get along. The neighbors cooperate well at thrashing and other work. The hand's wife helps the farmer's wife when she is needed.

This man gets help and keeps it, he said, for the following reasons:

"Good wages, congenial surroundings, the elimination of drags and drudgery is our plan here. We quit the fields at 6 p. m. and start for the fields at 6.30 in the morning, and this is always adhered to. We think 10 hours of honest toil is enough for man and beast. Good teams, tools, and equipment, and plenty of good stock attract help of the right kind. I am sure the house furnished, with the wage and extras, is appreciated by my man, and I know satisfied help is a big farm asset. We won't put up with a dissatisfied one and never have."

The Bureau of Public Roads has developed an automatic spray nozzle for overhead irrigation systems, and an automatic valve for sewage irrigation plants, which are to be tested soon under field conditions. It is believed they will greatly reduce the personal attention needed to secure uniform distribution of water.

FARMERS BY THOUSANDS ORGANIZE TO STRENGTHEN U. S. AGRICULTURE

(Continued from page 1.)

limited period, with clean-up work later. In other States more time was allotted.

Prospects for 60,000 farm bureau members are seen in New York State, according to a telegram that said the campaign has been successful, except where influenza interfered, and that many communities and a few counties had exceeded their quotas. Iowa reported that the epidemic had prevented a membership campaign, but even without it approximately 1,400 farmers had joined farm bureaus, increasing the membership in the State to 35,637. Word from Minnesota was that influenza was interfering with the campaign, but that half of the counties were making good headway. About 15 Minnesota counties had reported from 100 to 200 new members each, and the expectation was that when conditions permit the campaign throughout the State the total membership will be not less than 50,000. Ohio wires that an increase of 30,000 is indicated by first reports.

With the campaign not completed, New Hampshire has increased its membership by 2,000; 16 Tennessee counties have organized since October, making the present total 64, with county agents in 82; Florida has organized 35 counties; in Georgia practically all counties with agents have been organized with advisory boards, consisting of one member for each militia district, and three to five selected at large, as well as district committees of three to five; in Louisiana working organizations for the campaign have been perfected in the south central and northern sections.

Oklahoma has organized a federated agricultural association to support county agent work, embracing 15 State-wide associations and all county agricultural associations. Membership is growing steadily. The executive committee has been instructed to work with the board of regents of the agricultural college for an amendment to the county-agents law removing the limit on county appropriations.

Maine has just started a campaign among six farm bureaus, and reports approximately 1,000 members. Colorado added 300 members before influenza stopped the work. Idaho reports about 25 per cent increases despite the epidemic.

Some States have postponed their campaigns until public meetings are again permissible, and in others the work is just getting well under way.

HOW TO CONTROL EAR TICKS.

Ear ticks, blood-sucking parasites, which infest the ears of cattle, horses, sheep, dogs, and other animals and cause heavy losses among live stock in the semi-arid sections of the southwestern States, can not be eradicated by dipping, but may be controlled and losses may be prevented by injecting into the ears of infested animals a mixture of pine tar and cottonseed oil.

This conclusion has been reached by specialists of the Bureau of Animal Industry, United States Department of Agriculture, who treat the subject in detail in Farmers' Bulletin 980, "The Spinose Ear Tick and Methods of Treating Infested Animals." The Bulletin, which is available for free distribution, contains a brief description of the ear tick, its life history, and instructions for treating infested animals.

FIGHTING ASH-WOOD BORERS.

Special investigations to prevent serious losses of forest resources from damage by wood and bark-boring insects has been a part of the important war-time work of the Bureau of Entomology, United States Department of Agriculture. Recent investigations of logging and manufacturing operations in Mississippi to meet the demand for ash oars, handles, and other supplies required by the war service showed that one company had lost more than 1,000,000 feet of ash logs through failure to provide for prompt utilization after the trees were cut and thus prevent the attack of destructive ash-wood borers. The general adoption of the methods advised by this bureau has resulted in a continued reduction of the heretofore serious losses of seasoned ash and other hardwood sap material from powder post.

SHOWING HOW TO APPLY INSECTICIDES.

To demonstrate to farmers methods of fighting insects injurious to important crops and domestic animals has been a part of the year's activities of the Bureau of Entomology, United States Department of Agriculture. An average of 57 specialists of this bureau has been maintained in the field to instruct groups of farmers, live-stock men, fruit growers, and others in the preparation of spray mixtures, emulsions, poisoned baits, and in other methods of insect control. Persons in the communities where demonstrations are being made are induced, wherever it is possible, to assist in the work in order that each community may have one or more persons acquainted with the methods of assembling and applying insecticides.

Do your patriotic duty—buy war-savings stamps.

TEXAS YOUTH IS CLAIMANT FOR PIG CLUB CHAMPIONSHIP

Raiser of Poland China Sow Has Best Record, His County Agent Says

More Than a Thousand Dollars' Profit on $25 Investment Made in 15 Months—How This Work Is Boosting Meat Supply

Out of Bartlett, Williamson County, Tex., comes the pig-club champion not only of Texas but of the United States; that's what Owen W. Sherrill, the county agent says, at any rate. The name of the claimant is Elton Sartor, and here's the record on which the challenge is based:

His 68-pound registered big-type Poland China sow pig, selected 15 months ago from a famous herd in Kansas, cost him $25. The first litter from this sow was 11 pigs. The price he got for them when they were 6 months and 4 days old and weighed 2,233 pounds was $527.85. For 9 pigs out of the second litter of 12 he received $225. Adding $500, the amount refused for the sow, and deducting the feed bill of $172, the gain was $1,052.85. This means a net profit of $1,052.85 in 15 months on an initial $25 investment. Pretty hard to beat, isn't it?

Perhaps you wouldn't be so astonished if you lived in Texas, for, from all accounts, that's where champion pig raisers are developed. That's where young Shelby Mullins, the 1917 champion, came from. Mullins, though, hails from Georgetown, but also he was a protégé of County Agent Sherrill.

But, let's get back to Bartlett, the pig club, and the 1918 champion.

"Bartlett," say the knowing ones down there, "boasts the fact that as good hogs as money can buy in the United States are right here." Furthermore, it is the home of the Bartlett Boys' Registered Pig Club, of which Elton Sartor is a member.

Help From Bankers.

Bartlett is a thriving city of 1,815 inhabitants situated on the line of two of the richest counties of Texas, Williamson and Bell. It is a typical "live wire" city, whose business men spell progress with a capital P, and whose bankers are pace makers in cooperation. Sixteen Williamson County bankers, by the way, have been and still are financial backers of these pig club boys. Of this feature the county agent says: "I am safe in saying that no deserving boy has yet been refused assistance in buying his pig or brood sow where he was willing to follow the suggestions of the county agent"—a recognition of the worth of the methods recommended by the Extension Service of the United States Department of Agriculture, and the State agricultural colleges, and a tribute to Bartlett bankers. T. B. Benson, cashier of the Bartlett National Bank, goes further, declaring that "Any boy who will raise hogs and take an interest in them needs no other security than his note at this bank. I have not lost a cent on these notes and do not expect to."

The Bartlett Boys' Pig Club—strictly speaking, a pig club in the south is only one specific branch of boys' and girls' club work—is the outgrowth of the needs in Williamson County, as the wide-awakes in Bartlett saw it, of high-bred pigs and plenty of them. One of these men was County Agent Sherrill. He got together "two carloads of business men"—that's the way he expressed it—and "in one day organized at eight schools in Bartlett trade territory. Mr. Benson financed the boys, at 8 per cent interest, taking the boys' plain moral note, with their fathers' permission in every case, but with no indorsements or liens." This bank cashier further financed these youngsters in their feed bills—there had been a drought the previous year—and gave them two years in which to meet their obligations.

The best out of a carload of registered big-type Poland-Chinas from the leading Kansas breeders were selected and distributed to pig-club members. These consisted of 30 sow pigs and 1 boar three months old, cholera immune, weighing an average of 68 pounds each and costing $25 a head. "To date," says the report to the States Relation Service, United States Department of Agriculture, "17 of these sows weigh an average of 500 pounds each. They farrowed an average of 10½ pigs around and raised over 1,000 pounds of pig meat each."

Reports to County Agent Sherrill now show that one pig-club member has cleared over $1,000; four, over $500; eight, over $250; and eleven, over $100 out of one sow pig each in the past year.

There are other good records, too; for instance, that of one boy who was guaranteed $1,000 for his sow and litter of 11 pigs at Dallas last fall, but none of them is up to the standard of Elton Sartor, the star pig raiser of the Lone Star State.

Club Members Increasing.

County Agent Sherrill gives the enrollment in agricultural clubs for 1918 as 1,390, and predicts a membership of 3,000 for 1919. He says he has a number of bankers in other Williamson County towns lined up ready to start new pig clubs as soon as the Bartlett boys have sufficient litters of weaned pigs for redistribution.

Now a little more about Elton Sartor, the pig-club champion for 1918. He is 15, and he puts intelligence and energy into everything he undertakes. That's why he is champion to-day. Sartor saw big possibilities in pig raising; he had faith in the judgment of his county agent; so he borrowed $25 from a banker, bought a sow, and joined the pig club.

Sartor lays great stress on feed as a factor in pig raising. He believes in a balanced ration, and he has an abiding faith in milk as an article of pig diet.

"Whole milk," he says, "will certainly make a pig's tail curl." Of just what practical utility is the corkscrew effect of a porker's caudal appendage, Sartor doesn't say. It must mean something very desirable, though; otherwise it would not figure in championship pronouncements.

THE BASIS OF CROP REPORTS.

The Bureau of Crop Estimates, United States Department of Agriculture maintains 199,384 voluntary crop reporters, to whom schedules of inquiry regarding crop and live-stock conditions are forwarded periodically. These schedules are tabulated and averaged.

The data thus collected and compiled, supplemented by reports from the field service, constitute the basis of the monthly and special crop reports of the bureau.

MORE WHEAT IN SOUTH CAROLINA.

Farmers in Manning County, S. C., gave particular attention to wheat growing during the past year.

"To the extent," writes the county agent to the United States Department of Agriculture, "that almost every farmer has a few acres growing."

Most of the seed planted was bought cooperatively through the county agent. This concerted effort in wheat production already has stimulated the milling industry in this county, especially in the vicinity of Kingstree, where a modern mill now is in operation. Manning County has been benefited materially by the introduction of better seed, and also pure-bred stock, particularly hogs. This is the result, farmers say, of the farm demonstration agent's work.

It has aided them in diversifying their crops, raising more home supplies, establishing permanent pastures, and in intelligently combating tree and plant and cattle diseases.

AMERICAN FARMERS TO HAVE BEST OCEAN DELIVERY SERVICE

New Merchant Marine to Open Wide Markets for Producers

United States to Be Only Great Farming Nation With Large Fleet Available for Transport of Food to Foreign Lands

THIS is the second of a series of articles written for the Weekly News Letter by the United States Shipping Board.

During the coming year several million tons of merchant ships will be completed ready for sea service in our new shipyards. These vessels will give the United States a merchant marine among the largest in the world. Moreover, we will be the only great farming nation with a merchant marine to carry soil products to world markets. Some of the European countries, like Denmark, Holland, and France, have made successful use of their merchant ships to create world markets in high-class concentrated soil products, such as cheese, butter, eggs, cured meats, wines, and so on. But the other great maritime nations are, as a rule, importers of foodstuffs, not exporters, and they pay for food with manufactured goods.

The American farmer thoroughly understands railroad transportation, and uses different types of railroad service to expand his markets. The refrigerator car, the grain car, the horse car, the livestock car, together with express and parcel-post service, have been employed by our farmers to deliver perishables across the continent, and also serve neighborhood customers with choice food specialties.

World Commerce Visualized.

Our new merchant marine will offer facilities strikingly like those familiar in railroad transportation, and in thinking of world markets the American agriculturist can visualize our railroads connecting with our ships at tidewater and taking commodities around the world on our own trade routes.

There are four general types of ocean vessel, comparable with American railroad service. The fast passenger liner, carrying practically no cargo except baggage and mails, is the equivalent of the fast limited passenger train—these crack liners can only find profitable traffic between our Atlantic ports and Europe. The passenger-and-cargo liner running on regular routes and schedules to Latin America, the Orient, and other regions, is like the regular passenger train, but carries more freight. The fast cargo liner, running on regular routes and schedules, carrying high-class freight, corresponds to our fast freight service by which perishable commodities are shipped. And the tramp steamer, carrying freight only, chiefly bulk commodities, like grain, coal, cotton, and so on, following no regular routes and adhering to no regular schedule, is the common freight car of the ocean, conspicuous for numbers, adaptability, and economy.

Good Foreign Service Assured.

We are building ships in all these classes and as rapidly as possible the United States Shipping Board will assign them to world trade. As the refrigerator car has played an important part in finding markets for deciduous fruit, berries, meats, dairy products, and a wide range of farm produce, so the refrigerator ship on the ocean will make possible extensions of markets. To overcome handicaps of distance on our own continent, American growers have attained high standards in grading and packing their products, illustrated in boxed apples, oranges, pineapples, lemons, and grapefruit. Experiments in selling such products to Latin American and Oriental countries have demonstrated that American standard goods are appreciated, and that new trade can be built upon them. But heretofore there have been uncertain ocean shipping facilities—venturesome exporters could demonstrate world demand, but we had no refrigerator ships running on regular schedules to supply such markets, or, indeed, any ships at all, and service by foreign ships was too irregular and inferior to enable us to build lasting trade. With our own merchant marine, and ships meeting all the world market requirements both in regularity and quality of service, together with rates controlled by ourselves, and skilfully adapted to the needs of the traffic, we shall be able to enter these attractive markets abroad and give our foreign customers as good service as is given any home markets.

BUILD OR REPAIR THE ICE HOUSE.

Of course, you're planning to have plenty of ice next summer. It will be mighty helpful on those hot days in July—comfort in the home and saving in the dairy.

Are you ready? Is the ice house in good repair, or will you find, when a good freeze comes that you have no fit place to store ice? It will be to your advantage to spend some of your spare time NOW in getting the ice house in shape. Repair the sides and see that the roof doesn't leak.

If you haven't built an ice house, this is the time to do so. Don't be without ice next summer. It's expensive and inconvenient to depend on neighbors or haul from town. You can build a good ice house. If you want to know how, write to the United States Department of Agriculture, Washington, D. C., and ask for a free copy of Farmer's Bulletin 623. Do it now.

Meet Success in Producing Seed of Sugar Beets in This Country

To reduce dependence on foreign sugar-beet seed, efforts to produce this seed in this country are meeting with distinct success. Before the war domestic production was almost at zero. In 1916 the production had risen to 5,211,000 pounds, in 1917 to 5,558,000 pounds, and in 1918 to 6,384,000 pounds, the estimate for the last year being subject to revision.

Along with this movement, the acreage planted to sugar beets has greatly increased, with now and then a recession. In 1914 the planted area was 514,000 acres; in 1915, 664,300 acres; in 1916, 768,500 acres; in 1917, 806,600 acres; in 1918, 689,700 acres. This progression has called for more and more seed except in so far as a reduced use of seed per acre, as a war measure, has had its effect on the total amount of seed required by the acreage.

More beet seed has been imported during the war than before. The importations of 1910 to 1912 averaged about 11,000,000 pounds yearly; in 1913 they were 14,768,000 pounds; in 1914, 10,294,000 pounds; in 1915, 15,883,000 pounds; in 1916, 9,042,000 pounds; in 1917, 14,470,000 pounds; and in 1918, 16,636,000 pounds.

Upon combining imports with domestic production it appears that the approximate consumption of sugar-beet seed in this country was 19,681,000 pounds in 1917, and 22,194,000 pounds in 1918. Hence the domestic production in each of these years was a little over one-quarter of the consumption, and this result is one of the achievements in agriculture caused by the war.

The War Department is now doing a great deal of base map making in certain parts of the country. This work is similar in some respects to the work carried on by the United States Bureau of Soils, and arrangements have been made between the department and bureau by which an exchange of information will take place. By this plan no duplication of effort will occur and the two Federal agencies are working for mutual benefit.

Department Official Will Supervise Repayment of Money to Woolgrowers

Growers of both fleece and territory wools will be interested in the following statement which was issued by the United States War Industries Board on December 20:

"The release given to the industries of the country by the War Industries Board from pledges does not relieve such industries from the performance of their contracts up to January 1, 1919. This statement applies particularly to approved domestic wool dealers who have agreed in writing in applying for permits to operate that the difference between what the dealer received for wool from the Government and what he paid the grower, less his agreed rate of profit, should be disposed of as the Government directed. Under this agreement the Government has decided that the excess moneys shall be repaid as fully as possible to the individual grower himself, but in those cases in which this is impossible to the growers' organizations. The repayment of these moneys will not have been completed when the resignation of the chairman of the War Industries Board takes effect on January 1.

"At the request of Mr. Baruch, Mr. Charles J. Brand, Chief of the Bureau of Markets of the Department of Agriculture, has agreed to direct its completion as an incident to his other duties. With the approval of the Secretary of Agriculture, Mr. Brand will assume supervision of the work immediately."

As the number of transactions involved in this matter is large, it will require a period of some months to carry out the repayment to the growers of the sums of money due them. The Government regulations for handling the wool clip of 1918 cover the product of the whole year. Only such wools as have been loaded on cars and billed to an approved dealer in an approved distributing center on or prior to December 31, 1918, will be taken over. Obviously it was not possible to determine the amounts due producers until the wools had been received, classified, and valued, and until the dealers' business for the year was wound up.

WORK OF FARM BUREAU RESULTS IN APPARENT CONTROL OF HOG PLAGUE

A well-meant effort last year to give free demonstrations in hog-cholera vaccination in Dunkin County, Mo., failed utterly.

But this year 6,700 hogs on 424 farms in that county were vaccinated between April 8 and September 20, and cholera is now apparently under control there.

Last year the farmers of Dunkin County had no central organization of their own through which a campaign against hog cholera could be conducted.

This year they have a farm bureau, with active committees in every community in the county—which accounts for the difference. Now they can get prompt cooperation in any move for the good of farming. Hog cholera had long been taking toll of the hogs of Dunkin County, and in April, 1917, the county bureau decided to inaugurate a general eradication campaign. Each community committee was notified that the county agent and a veterinarian of the United States Department of Agriculture would visit the community on a certain date, prepared to vaccinate hogs. Farmers were urged to get their hogs into pens beforehand, a necessary preliminary, as hogs are ordinarily allowed to run at large in that region. The response to the appeal of the local committeemen was prompt and general. Hogs were offered for vaccination in every community in the county. In a short time 5,500 animals, on 350 farms, had been given the simultaneous treatment, and the disease was apparently checked. A few weeks later, however, other outbreaks occurred and the work was resumed, 1,200 hogs, on 74 farms, being vaccinated. Now, although hog cholera has not been stamped out altogether, it is apparently under control and its virtual eradication seems assured, since the farmers of the region have been convinced by actual demonstration of the value of vaccination.

The campaign has shown, also, the practical value of the farm bureau organization. Without the aid of the farmers' own organization, the county agent and the Federal veterinarian would have been almost powerless to accomplish much in meeting the emergency.

TEST PURITY OF WATER SUPPLY.

There are few tests for contamination that the farmer can make, according to Farmers' Bulletin 941, "Water Systems for Farm Homes." Peculiar odors, those of earthy, musty, vegetable, sulphurous, fishy, or fecal character, sometimes are developed by shaking or by heat. Water may be tinted green by vegetation or other shades by wash from clays. Brown and yellow tints are indicative of organic impurity and should be regarded with suspicion. Organic matter is indicated sometimes by the following simple test: Add a very little clean, white, granulated sugar to a half pint of the water in a clear, stoppered bottle, and allow it to stand in a warm room for a few days or a week. Gradually increasing turbidity, a smoky clouding, is evidence of impurity. Organic matter in water may be indicated also by heating any deposited sediment in a small porcelain dish over an alcohol flame and noting if the deposit chars and blackens.

Hulda, Just an Ordinary Cow; But to Hulda Hangs a Tale

Two years ago Hulda was just an ordinary grade cow, getting on in years, and with no future—unless the prospect of winding up as a canner may be called a future. No "Johanna," or "Korndyke," or "De Kalb," or any such aristocratic attachments to Hulda's name. Just plain Hulda, and no more. She was 12 years old, and in 1915, so her record shows, she produced only 246 pounds of butter fat.

Last year Hulda's owner, a farmer of Ottertail County, Minn., joined a cow-testing association and began to take a new interest in the care and feeding of his cows. In common with the others of the herd, old Hulda got better care and a better balanced ration than she had been used to getting, and she began to wake up. That year, as a 13-year-old, Hulda produced 429 pounds of butter fat.

This year, as a 14-year-old, Hulda has demonstrated what some old cows can do if they are given half a chance. Her owner tried milking her three times a day, and she came through the testing year with the really remarkable record of 716 pounds of butter fat.

Hulda stands as a striking example of the practical results that farmers are getting through business organizations of their own. In Ottertail County, the cow-testing association and other better-farming projects fostered by the farm bureau and the county agent are contributing in a marked degree to the prosperity of the community. Hulda is not the only cow in Ottertail County that has picked up in butter fat in the past two years.

During the last year the United States Bureau of Soils carried on cooperative work in its soil surveys with the Office of Indian Affairs in Arizona and Utah, with the Reclamation Service on two projects in Wyoming, and with the Bureau of Plant Industry in Maine.

Department Offers Help to Dairymen in Driving Tuberculosis from Country

Any herd of cattle built on a foundation of diseased stock can not survive profitably for any length of time. The wise breeder who is establishing a herd, therefore, will see that his original stock comes from herds known to be free from disease and that the animals have not been otherwise exposed. More than that, the established breeder, to safegnard the health of his herd and meet the increasing demand for healthy stock, should use every means at hand to maintain a herd known to be healthy.

Government Asks Cooperation.

The Dairy Division, United States Department of Agricnlture, cooperating with the Tnberculosis Eradication Division, is ready to assist members of cow-testing and bnll associations in controlling infectious diseases among their animals. This assistance is rendered free in associations whose members request it and who will cooperate with the Bureau of Animal Industry in maintaining healthy herds.

In several cow-testing and bull associations the members have already accepted Federal assistance and report good results. Practically all members snbmit their herds to the necessary tests and in this way start tubercnlosis-free communities, which are expected eventually to grow to connties, then to States, and finally the entire United States may be freed from bovine tuberculosis.

Accredited-Herd Lists Stimulate Sales.

Accredited-herd lists will be issued at suitable intervals. These lists contain the names and addresses of the owners, and a statement of the breed of cattle maintained by those owners whose herds are fonnd to be free from tuberculosis.

Already approximately 50,000 copies of the first list have been distribnted among breeders, State officials, extension men, breed associations, and others. Breeders whose names appear on this list state that as a result they have received numerous inqniries from prospective purchasers, some bnyers even desiring to purchase the entire herd.

Certain communities have become unfavorably conspicnons for the large number of tuberculous cattle found in them, and purchasers of cattle both for breeding and slaughtering purposes are shunning those sections. On the other hand, when sections become noted for their healthy cattle, buyers obviously will seek animals from the breeders in such tnberculosis-free localities.

MORE WAR FOOD GROWN IN GUAM, HAWAII, ALASKA, AND PORTO RICO

The State agricultural experiment stations promptly adapted their work to emergency conditions created by the war, not only by supplying needed information but by taking an active part in efforts to stimulate production, prevent unnecessary loss, and make the farmers' efforts more effective.

The experiment stations in Alaska, Hawaii, Porto Rico, and Guam, under the direct management of the United States Department of Agriculture, turned their attention largely to food production and conservation problems, and since they, from the beginning, have been investigating the possibilities of diversified farming in the regions represented by them, they had a fund of general information regarding crop preduction which was immediately pnt to good use.

In Alaska cooperative work with settlers was undertaken on a larger scale than ever before, and much was done in saving and distributing seeds and plants especially suited to local conditions. In spite of an unfavorable season, considerable amonnts of food crops, such as wheat, oats, and other grain, and potatoes, were prodnced. The Hawaii station cooperated with various other agencies in promoting the production and utilization of food crops. Gardening especially was encouraged with gratifying results.

The Porto Rico station, in cooperation with the Insular Food Commission, did much demonstration and extension work to arouse the people to the importance of greater food production. As a result the area devoted to food crops was increased 43 per cent and more than 25,000 home gardens were planted. Beans, a staple food crop of the island heretofore imported in large quantity, last year were prodnced in sufficient quantity to supply domestic needs, with a surplus for export. The station in Guam aided the local Government in the campaign for increased food prodnction by supplying seed and supervising cultivation.

CITY PEOPLE LEARN OF FOOD PRODUCTION.

Through the home demonstration agents, boys' and girls' clubs, and garden specialists of the U. S. Department of Agriculture and the State Agricultural Colleges, a great many city people now have expert advice and assistance in food production and conservation. They are also getting a better understanding of the problems involved in the production and marketing of farm products, and are being brought into more helpful and sympathetic relationship with their neighbors on the farms.

Hawaii Grows Much of Food Formerly Imported To Island

Hawaii is a large importer of foodstuffs, the valne of imports amonnting in 1917 to more than $10,000,000, but much was done dnring the past year by the Hawaii experiment station and various cooperating agencies to help Hawaii feed itself. Home gardening was encouraged, the use of snbstitutes for wheat was tanght, and increased consumption of home-grown products was encouraged.

Mrs. J. M. Westgate, cooperating with the station, worked out a method of substituting abont 30 per cent of banana pulp for wheat flour in bread making. This practice, taken up by bakers of Honolulu, resulted not only in the saving of wheat-flour, bnt in finding a use for the surplus of bananas following the removal of steamships from transportation routes.

As a resnlt of successfnl control of pineapple yellows by spraying with iron snlphate solution, at least 7,500 acres have been added to the area devoted to pineapples. The production of potatoes was increased largely as a result of teaching efficient methods of spraying.

ROAD BUILDING IN NATIONAL FORESTS.

Road construction under way in the national forests now includes 10 projects, with an aggregate mileage of 53.5 miles. At the beginning of the calendar year 1918 an annual working plan was prepared by the Bureau of Public Roads in cooperation with the Forest Service. Care has been taken in the past year to limit work to roads which would contribute to the winning of the war, or which could be built without drawing upon supplies of labor, material, or transportation required for war industries.

Tests npon clay tile wrapped with wire and laid in concrete, for distributing mains in farm irrigation plants, have demonstrated that this material will serve the purpose excellently, withstanding considerable pressure and costing much less than iron or other suitable material generally procurable, according to the Bureau of Public Roads.

Motion Pictures to Help Feed Hungry World; Work Redirected

The motion-picture work of the United States Department of Agriculture has been redirected since the signing of the armistice to help more directly in meeting the needs of the world for food.

Secretary of Agriculture Houston has stated that "for a considerable period the world will have need particularly of a larger supply than normal of live stock, and especially of fats. We should not fail, therefore, to adopt every feasible means of economically increasing our live-stock products. As a part of our program we should give due thought to the securing of an adequate supply of feed stuffs and to the eradication and control of all forms of animal disease."

Conservation Films Hurried.

In carrying out this program the motion-picture branch is rushing to completion projects that are deemed specially necessary for this work, such as those covering the care and handling of dairy and beef cattle and poultry, clean milk production, hog feeding and housing, the control and eradication of hog cholera, of insect parasites of live stock, and the transfer of cattle from drought-stricken areas to the corn belt, where feed is plentiful.

Since eradication of plant diseases and of other factors tending toward the reduction of human food and animal feed crops is also essential for the execution of this plan and in strengthening the foundations of agriculture for the future, the series of films on the control and prevention of grain rusts, and fumigation of citrus fruits and the extermination of such pests as prairie-dogs and grasshoppers, which were filmed during the summer by the department's camera men, are being moved ahead rapidly.

Other Films in Preparation.

Films are also being prepared as part of the campaign which the Forest Service is making in cooperation with the Fuel Administration for increased wood fuel production and the substitution of cordwood for coal in regions where coal will be scarce during the winter.

Many features of the department's work which received little or no emphasis during the war, such as game preservation and the development of recreation on National Forests, will also be featured in new films to be released during the winter months.

Believes Feed, More Than Breed, Determines Pork-Production Profit

Barley, potatoes, skimmed milk, and pasture would seem to be a pretty good ration for pig fattening, judging from the success attained by a boys' pig club leader, Villa Grave, of Colorado. A report recently received by the States Relations Service of the United States Department of Agriculture shows that "Dixie," a grade Poland China gilt, was farrowed March 18, 1918, and made the following rapid fattening record: Weighed 3 pounds when 10 days old; weighed 13 pounds when 23 days old—gain, 10 pounds in 13 days; weighed 32 pounds when 43 days old—gain, 19 pounds in 20 days; weighed 47 pounds when 54 days old—gain, 15 pounds in 11 days; weighed 64 pounds when 66 days old—gain, 17 pounds in 12 days; weighed 85 pounds when 76 days old—gain, 21 pounds in 10 days; weighed 112 pounds when 3 months old—gain, 27 pounds in 14 days; weighed 155 pounds when 4 months old—gain, 43 pounds in 30 days; weighed 195 pounds when 4 months 20 days old—gain, 40 pounds in 20 days; weighed 220 pounds when 5 months old—gain, 25 pounds in 11 days.

In the opinion of the pig club specialist of the extension division, of the Colorado Agricultural College, "feed, more than breed, determines the profit in pig production, though both are necessary for the best success."

SUGAR-BEET GROWING DISCUSSED IN NEW BULLETIN BY DEPARTMENT

The urgent need for an increased production of sugar in the United States brought about by the war led specialists of the United States Department of Agriculture to make a study in areas where sugar beets are now grown to determine factors that are favorable to the production of this much-needed crop. A report of the investigations has just been published by the department as Bulletin 721. This bulletin discusses the soils and climate best suited for sugar beets, suitable farm equipment, methods of culture, diseases and insect enemies, farm-labor problems, and other phases that should be considered by prospective growers.

Almost any fertile soil capable of producing crops of other kinds will, if properly handled, produce good sugar beets, according to the bulletin. More depends upon the physical condition of the soil and the way it is handled than upon the so-called kind and type of the soil. Extremely sandy soil or soil of a decidedly gravelly type, however, is not usually satisfactory for this crop. Successful sugar-beet growing is confined to the temperate regions. Frequently the beets will produce a satisfactory tonnage of root in warmer areas, but for some reason they generally are not sufficiently rich in sugar to make them profitable in sugar making. Good drainage has an important bearing upon producing high yields.

One of the serious problems on many of the sugar-beet farms is that of labor. There are periods when considerable labor is needed, as during the blocking, thinning, and harvesting seasons, and the problem of securing the necessary help at these times is one of the limiting factors in sugar-beet production. This problem is being solved by organizing available labor, by adjusting the farm work, and by the development of labor-saving machinery.

Farmers' Organizations, Helped By Agents, Do $18,000,000 Business

Although the county agents in the Northern and Western States last year devoted most of their efforts to the increased production and conservation of food, the business side of farming was not neglected. They induced 12,841 farmers to keep farm accounts, and farm analysis records were taken by the agents on 3,049 farms. Using these records and their accounts as a basis, 3,167 farmers modified their plans of management.

Through the 637 farmers' exchanges and other cooperative purchasing and marketing associations organized with the assistance of agents or at their suggestion more than $18,000,000 worth of farm products and farm supplies were handled, resulting in saving nearly $1,500,000 for the farmers.

Of the 38,136 square miles surveyed and mapped in detail during the fiscal year 1918 by the United States Bureau of Soils, all except 4,429 square miles, distributed in five States, was surveyed in active cooperation either with some State organization or with some of the bureaus of the Federal Government.

Dangerous Maladies Carried by Fleas; How to Get Rid of Irritating Insects

Of all insect pests that annoy man, fleas, it will undoubtedly be conceded, are the most vexatious. But there is a more serious side, for it is an established fact that fleas are disease carriers. The bubonic plague, for instance, which from time to time has been introduced into the United States on both the Pacific and Gulf coasts, and which affects man and rodents, is occasioned by fleas conveying the bacillus that causes this dreaded disease. This is only one of several maladies attributed to these insects. There is a probability, according to the Bureau of Entomology, United States Department of Agriculture, that fleas can carry many diseases not heretofore credited to them. Future investigations, entomologists think, will reveal them.

All past investigations with fleas have dealt entirely with the possibility of conveying disease by the bite of the adult flea, and the bureau suggests that there are possibilities of other means of disease transmission; for example, the larvæ taking up organisms from the filth in which they breed and retaining these organisms to be transmitted by the adult. The larvæ breed in dirt and usually are to be found where animals are common. Also they may breed in the dirt of kennels and stables, in the open country, in carpets, in closets of houses, and especially in cellars.

May Have Many Germs.

In respect to the flea bite, it is astonishing how many germs one of these diminutive pests can suck into its system. While imbibing the blood from a plague-rat, the stomach of the rat flea is capable of receiving as many as 5,000 germs. These germs may be carried by both male and female fleas, which may remain infective for 20 days during an epidemic. Inoculation may be by scratching in of the bacilli which have been voided in the feces of the flea, or by the forcing of the bacillus-laden blood into the wound made by the flea bite.

Nine species of rodents, but mainly rats and mice, are hosts upon which plague fleas feed. The dog flea and the human flea are the two most important species invading the habitation of man. Adult fleas feed more or less on cats and dogs, the immature stages developing in cracks of floors, beneath carpets, or in rooms not frequently swept and to which pet dogs and cats have access, and beneath houses.

To rid the premises of fleas the carpets and rugs should be removed, the floors thoroughly swept, and all of the dust obtained burned, as it contains many of the eggs and maggots of the fleas. Then the floor should be scrubbed with strong soapsuds or sprinkled with gasoline, care being taken to avoid having fires about. After the floor coverings are thoroughly aired and beaten they may be returned, but it is desirable before putting them down to sprinkle the floor with napthalene crystals or pyrethrum powder.

Washing Animals Useful.

The thorough washing of infested animals in kerosene emulsion is a cheap and satisfactory method of destroying fleas. Five gallons of this emulsion may be made by dissolving 2 ounces of washing soap in 1 quart of hot water, and when brought to a boil, removing it from the fire and adding 2½ pints of kerosene. The mixture should be agitated violently with an egg beater or something of the sort. This should result in a milky mass from which the oil does not separate. Water is then added to make 5 gallons. Free kerosene will burn animals, and if any separates out the mixture should be reheated, care being taken to avoid spilling it on the fire or boiling it over, and then it should be beaten again.

Those who are especially annoyed by the bites will find that various cooling applications will give relief. A 3 per cent solution of carbolic acid in water applied to the bites will be beneficial, and such substances as menthol, camphor, and carbolated vaseline will be found to allay the irritation. Iodine in the form of a tincture if applied to the bites will alleviate the irritation, but should not be used by persons afflicted with any form of eczema, or applied to the tender skin of young children, as it may stimulate the eczemic eruptions or blister the skin.

City People and Farmers Learn To Cooperate for Good of All

One of the greatest achievements of the farm labor activities conducted by the United States Department of Agriculture during the past year in farming sections all over the country where labor was needed was the establishment of cordial cooperation and sympathetic understanding between farmers and local business men, department specialists state.

As a result of this cooperation crops have been harvested by aid of the business men from cities and towns in hundreds of localities where large losses would undoubtedly have resulted from lack of labor. About 35,000 town and city dwellers helped harvest in Kansas, 15,000 in Nebraska, 20,000 in Oregon, 10,000 in Missouri, 12,000 in Indiana, 25,000 in Illinois, and proportionate numbers in practically all other States. The farmer has thus learned that local town and city folks can assist greatly in this emergency work, and has come to look with favor upon their cooperation. The effect has been to bring farmer and town resident into more cordial relations.

The results achieved along this line are especially helpful toward providing the harvest labor needed in a constantly enlarging agricultural program. Too much emphasis, it is believed, can not be placed upon the phase of the labor work that has to do with bringing into close cooperation and alignment all the forces which have more or less to do with the labor problem and framing a program that will eliminate as far as possible the loss due to having an oversupply of labor at certain places and shortage at others, and that will make possible the use of all the local labor to the fullest extent and thus save transportation of workers from distant areas and necessary loss of time occasioned in such travel.

The success in dealing with the farm labor situation during the past year is thought to justify confidence in meeting any situation that may develop in 1919.

SAVING STORED PRODUCTS.

Inspection of warehouses and mills where food supplies are stored has been part of the important work of the Bureau of Entomology, United States Department of Agriculture, during the war. Because of the general food need of this country and of the Allied countries this bureau has disseminated information regarding the suppression of insect pests of beans, peas, corn, wheat flour, and food products made from them.

Large supplies of food that were being seriously affected by insects have been located. The owners have been advised of the necessity for prompt action to avoid further losses, and have been shown how to prevent losses to newly acquired supplies that are free from insects. This service has been extended to farmers, particularly to growers of corn and rice, whose crops suffer extensively from weevil attack, and to food and clothing supplies for overseas shipment. Cooperation with the Quartermaster Department of the Army at New York served to check insect ravages before the insects had the chance to multiply greatly.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Pure-Bred Pigs "Preferred Stock."

More than 80,000 boys and girls in the United States are enrolled in pig clubs organized and conducted by the United States Department of Agriculture and the State agricultural colleges, and 71 per cent of the reporting members raise pure-bred pigs. The juvenile wisdom displayed is supported by records showing that more than 12,000 pigs made an average daily gain of 1.14 pounds in weight, which is considerably above results obtained on most farms. Pig clubs, now established in 28 States, are believed to have such a beneficial effect on the swine industry of the country that the Department of Agriculture has assigned 49 specialists to foster their further development.

Dips Cheaper Than Ticks.

That big dividends follow investments in cattle-tick eradication is shown by investigations during the last year by the United States Department of Agriculture. The expense of permanently freeing cattle from ticks is repaid from 20 to 50 times. The cost of making the necessary number of dippings varies from only 18 to 50 cents for each animal, and one canvass showed an average estimated increase of $9.76 in value of the tick-free cattle. More than that, the eradication of the ticks, as conducted under Federal supervision, permits the introduction of high-class beef and dairy cattle and the establishment of a more profitable live-stock industry. Emphasis is placed by the department on the need for a clear understanding of the purpose of tick eradication and the necessity for strict compliance with regulations to insure thoroughness. By cooperating with the Government in the work farmers receive the numerous benefits resulting from the opportunity for great improvement in their herds.

Court Buys Lime Crusher for Farmers' Use.

When the fiscal court of Allen County, Ky., went with the county agent to see a field demonstration where limestone had made red clover grow abundantly where before clover had been a failure, the favor of the court was gained to the extent that when the court met in regular session an appropriation was voted for the purchase of a limestone crusher. The crusher cost $2,500. It is a portable outfit, and for eight months of the year the county agent, by order of the fiscal court, has control of the machine. It is taken around from community to community to crush the natural limestone rock for agricultural purposes. This work is done at cost for the farmers. In the other four months of the year the crusher is used by the county on road work.

Farm Community Organized—Gets Results.

What a farm community can do for its own progress when the get-together spirit prevails is well shown with the Burwood community, Williamson County, Tenn. This community, encouraged by the county agent, formed an organization which embraced men's interests, women's interests, canning clubs, corn clubs, and poultry clubs. In this way they received a community charter and proceeded to work. When the wheat increase was asked, 50 acres was assigned to Burwood community; the community came across with 323 acres in 10 days. Similarly organized communities made it possible for Williamson County to pledge an increased acreage of 2,000, while the county was asked for only 1,369 acres.

Tour County to See Community Work.

Stirring up ambition and friendly rivalry by going out to see what other communities have accomplished is an excellent way to raise the standards of a whole neighborhood, in the opinion of home-demonstration agents of the United States Department of Agriculture and the State agricultural colleges. In Middlesex County, Mass., one of the most stimulating projects this fall was a one-day auto tour to some of the most interesting canning kitchens, food centers, and community houses in the county. Sixteen automobiles, carrying 70 persons, made the trip, and the occupants saw at first hand what the other towns in the county are doing in community work.

Push the Button and Find a Pig.

A Litchfield (Conn.) county agent originated an interesting plan for an agricultural survey. If you want to locate a supply of seed corn or oats, a grain binder, a pure-bred bull, or some young pigs in any community in five counties in this State, all you have to do is to walk into the office of the State librarian at Hartford, Conn., run a series of cards through an electric sorting machine, and, presto, you have the information. It may sound a little like the story of Aladdin's lamp, but it is only big business applied to farm affairs under war stress. The council of defense took up this plan and offered to back the farm bureaus to the limit in every county in the State. Five of the eight counties began surveys early in March, 1918. Forty questions, under the headings of area, crops harvested in 1917, crops planned to be harvested in 1918, live stock on hand, machinery on hand, and employees, were included in the survey, and a corps of volunteer farmer census enumerators got busy. When the survey was completed the farm bureaus had a stack of cards containing minute information as to the resources and needs of every farm. An electric sorting machine was installed in the State library, and any fact disclosed by the survey can be made available by throwing on an electric switch. The survey has been invaluable in helping Connecticut to mobilize her agricultural forces for war needs.

Surveyed 38,136 Square Miles Last Year.

Detailed soil surveys covering 38,136 square miles were made during the fiscal year 1918 by the Bureau of Soils of the United States Department of Agriculture. Prior surveys of 445,825 square miles make the total 483,961 square miles. Twenty-two States and four bureaus of the Federal Government are now actively cooperating in soil-survey work.

Says County Agent Was Big Factor.

To operate a farm of 319 acres with only two young boys to do the work is not an easy job. To make it produce a net profit of $1,800 in one year under those conditions is considered a real achievement. A farmer near Rockford, Coosa County, Ala., in a letter to the United States Department of Agriculture, gives this as the record made by his own sons. But he adds that the county agent was the big factor in the achievement. It was the agent who

helped to select the seed and gave advice on drainage, terracing, pasturing, and the care of the cattle and hogs. "In a general way he has helped by organizing the boys' pig and calf clubs that are working wonders for the improvement of stock," writes this farmer. Also he adds that this county agent and his wife "have caused the canning industry at home to increase 500 per cent in the last two years."

Arsenical Spray Saves Berries.

Arsenical spraying for the control of the insects known as leaf rollers that are injurious to strawberry, blackberry, raspberry, and related plants of the rose family has been found to accomplish good results. The Bureau of Entomology reports the saving of at least 50 per cent by the use of this spray in Iowa and Kansas. A single spraying resulted in destroying two-thirds of the pests.

Farmers Organize Dairy Company.

Farm-bureau leaders, and the county agent who merely furnished information as to how to organize a company on a strictly cooperative basis, saved the farmers of Middlebury, Vt., from a heavy loss. A milk company, through which the dairymen had been shipping their milk, went into bankruptcy. The milk plant was to close in a few weeks, leaving the dairymen without a means of disposing of their product. The dairymen's claims against the company were covered by a bond for $15,000. The farm-bureau president, who was a patron of the milk plant, after conferring with the county agent, called a meeting of the executive committee. As a result of this meeting a committee was appointed to attempt to interest the farmers in purchasing the plant. A creamery-equipment expert was secured from the office of the State Department of Agriculture to appraise the value of the plant. Later, a meeting of the patrons was called and it was decided to organize a cooperative dairy company and purchase the milk plant. The cooperative company assumed the claims of the farmers and issued stock to cover the cost. The quick action which was possible because of the county farm bureau organization thus saved the farmers considerable loss.

To Strengthen Farm Bureaus.

At a conference of farm-bureau officers and county commissioners at Manhattan, Kans., in November, a committee on farm-bureau organization recommended strengthening of the organization in each county. This will be done by increasing membership, developing a strong program of work by raising as far as possible adequate funds for carrying out the work planned in its program, and by carrying on a thorough publicity campaign during the membership drive in order to acquaint all of the people of the county—business men as well as farmers—with the work already accomplished in the county and with the proposed work for the coming year.

Return of Farm Soldiers Asked.

Kansas farmers have petitioned the War Department to speed the return of her soldiers to the farms.

At a conference of farm bureau officers and county commissioners recently at Manhattan the committee on reconstruction offered the following resolution: "We respectfully request the Secretary of War and the Provost Marshal General to adopt some such plan as will return the soldiers to the homes they left at the earliest possible date. In Kansas there has been sown to wheat this fall a record acreage, amounting possibly to more than 10,000,000 acres, with a crop prospect, which, if realized, will require an army of workers to harvest next year. The demands of the farm for labor in the early spring for preparation and planting the spring crops is also great, and in no other way can the situation so well be met as through the demobilization of our soldiers and sailors in the manner suggested."

Breeding Ewes Distributed.

One thousand breeding ewes are being distributed among the farmers of Rock Island County, Ill., through the cooperation of the county farm bureau and county agent. These ewes will be placed on 66 farms and will form centers for developing sheep growing in this county. Pure-bred Shropshire bucks are being placed with practically all the new flocks.

Associations Ship Live Stock.

La Salle County, Ill., now has five live-stock shipping associations doing a thriving business, according to the county agent. One association has been doing business for the past 12 months and in that time has shipped 75 carloads of stock. The manager receives, marks, and loads the stock for market. At the Chicago Stockyards each man's consignment is weighed and sold separately, and each man receives what his stock brings less his proportionate share of the expense of shipping. This system is filling one of the demands for a more economical system of marketing and is a popular branch of farm bureau work in this county.

Housewives Trade Ideas Through Newspapers.

There will be competition this winter in El Paso County, Tex., among housewives in various communities as to which neighborhood can furnish the county with the most helpful ideas. The county paper during the past year has given its "Farm Home Department" into the charge of the home demonstration agent of the Department of Agriculture, working with the State agricultural college, the county agricultural agent, and their helpers. Each week the department is to be in charge of women of different communities, who will fill the columns with articles and ideas they consider most valuable. Another interesting feature in the same paper is called "Bridget's Corner." This column is under the supervision of the home demonstration agent, who has been giving cookery lessons in it.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended December 28, 1918:

The Beet-Sugar Industry in the United States. Department Bulletin 721.

Effect of Grazing upon Western Yellow Pine Reproduction in Central Idaho. Department Bulletin 738.

Farm Practices that Increase Crop Yields in Kentucky and Tennessee. Farmers' Bulletin 981.

Farm Practices that Increase Crop Yields in the Gulf Coast Region. Farmers' Bulletin 986.

Laws Relating to Fur-Bearing Animals, 1918. Farmers' Bulletin 1022.

Varieties of the Satsuma Orange Group in the United States. Bureau of Plant Industry H. & P. Circular 1.

The Work of the Belle Fourche Reclamation Project Experiment Farm in 1917. Bureau of Plant Industry W. I. A. Circular 24.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Rain water is soft and comparatively pure, but contains ammonia, acids, dust, and other impurities washed from the atmosphere.

HOW TO HELP A HORSE GET ON HIS FEET AFTER A FALL

First Unhitch Him, and Talk So That He Will Not Be Scared

Animals Driven on City Pavements Quickly Become Smooth-Shod—Asphalt and Ice Make a Bad Combination

When a horse falls in harness he almost immediately struggles to regain his feet. A strong, healthy horse will not remain down voluntarily, but in his efforts to rise he may become frightened. If the driver will give the right kind of first aid he can prevent serious injury to the animal, says the United States Department of Agriculture. Department specialists tell how to do it:

First Unhitch Horse.

Held down by the harness the horse seldom has sufficient freedom to rise to his feet, though enough to struggle and injure himself by pounding his head on the ground. Accordingly, the driver should calm the horse first by speaking in a reassuring tone and, by placing his knees upon the animal's neck just back of the ears, endeavor to prevent injury from struggling or from bruising his head. An intelligent horse quickly learns to place great confidence in the voice of a good driver.

The traces and breeching straps should be unfastened and the vehicle rolled back from the fallen animal. If the horse is in double hitch, the traces and yoke strap should be unfastened and the pole, vehicle, and working mate moved a short distance away. An injured horse will then regain his feet readily if he has suitable footing. In case the ground is icy, scatter some fine sand, sawdust, or straw under and in front of him. If nothing of this kind is available, spread a blanket or burlap bagging on the pavement to give him better footing as he attempts to stand.

When the Horse Lies Broadside.

In case the horse needs more help and encouragement, and especially if he lies broadside, roll him on to his chest, with the hind legs under the belly. Then work both front legs forward until the feet are firmly on the ground and knees flexed. If after repeated efforts and good footing he continues to fall back upon the ground there is possibly some injury to the hind parts, such as a fracture of the hip or leg, which should be examined by a qualified veterinarian.

In all effort to assist a fallen horse do not forget that in rising to his feet he raises the head and fore parts first. This is directly opposite to the habit of the cow, which elevates the hind parts first.

Asphalt Especially Treacherous.

Injuries to horses are common during the winter months in cities where snow becomes packed and forms an icy coating on the pavement. In most cities above the frost belt there are times when pavements are slippery.

Asphalt is especially troublesome and when covered by a very light sleet or snow makes a very treacherous footing for horses. The milkman or baker, who drove upon a clean pavement the night before, may find the streets at 4 a. m. so nearly impassable from a coat of smooth ice as to delay his deliveries very greatly or even prevent them entirely.

Special Shoes and Careful Driving.

In country districts horses remain sharp or rough shod for a considerable time. But if they are driven much on city streets paved with stone, cement, or asphalt, from which the snow has been been removed, their shoes quickly become smooth and it is difficult for the horses to keep their feet.

When the front feet slip backward a horse is likely to fall and injure his knees, while side slipping generally causes him to come down broadside. Shoeing with rubber pads, or the use of emergency appliances may lessen the chance of slipping, but as there is always the possibility of a horse falling, even when well shod, careful driving and precautions against overloading are important additional means for reducing these accidents and injuries to a minimum.

MANY APPLE AND PEACH REPORTERS.

Approximately 10,000 voluntary apple reporters and 4,000 peach reporters are included in the special lists of correspondents reporting in the fruit crop service of the Bureau of Crop Estimates, United States Department of Agriculture. The total crops included in this work had a value in 1917 of $274,143,000.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 2.*)

for most farmers to take stock of machinery and other equipment and to list and put a valuation upon every animal and thing on the farm. Like other business men, farmers need to know what they have, what each article cost, and also its market value at a given time (say January 1 or March 1) of each year. Comparing the inventory of January 1, 1918, with that of January 1, 1919, a farmer will have a better opportunity to study his business than he could otherwise have.

The inventory may be thought of as the beginning of an accounting system. Thousands of farmers are now making systematic efforts to keep such records and accounts as will enable them to know their business as business, and to be able to know how and why it is profitable or unprofitable. In this work many farmers are getting substantial help from farm-management demonstrators and county agents, and all may by asking for it.

EVERY FARMER WHO CAN SHOULD STORE ICE.

Where ice, and sawdust or other insulating material for packing the ice, is available it is most unfortunate for any farmer not to have a full supply of ice for the many purposes needed. In the northern dairy sections most farmers do this and find the cost is very little, though it may involve some hard work. A special ice house is not at all necessary. One square in a barn or shed, tightly boarded, is suitable, but double boarding is desirable to provide dead-air space. The blocks of ice should be packed solid in the center leaving a space of about 18 inches on all sides for sawdust or other insulating material. If snow is available, be sure to fill all spaces between the cakes of the bottom tier of ice with it and the spaces of each tier above as the mass is built up. This will exclude air and the ice will keep much better. The ice mass thus forms one large solid block covering a space about 10 feet square with a height of 10 to 15 feet. The insulating material then to be packed around the mass should be tramped down as firmly as possible for each foot of material added, then the top covered with the same material to a depth of not less than 18 inches. Handled in this way, a good supply of ice is inexpensive.

The work of analyzing the raw materials and slags from the blast-furnace industry to determine if possible the amount of potash now lost in that industry which might be collected for fertilizer has been carried on by the United States Bureau of Soils during the last year and is expected to be completed during the current fiscal year. It is evident from the work so far done that a very large amount of potash can be made available from this source if suitable collecting apparatus is installed. The bureau is also conducting research work in the commercial collection of potash from cement kilns.

Live-Stock Production Helped By County Agents in North and West

Production of more and better live stock with less expensive feed and greater profit to the producers is given attention by county agents in nearly every county in the 33 Northern and Western States.

During the fiscal year 1918 the agents assisted in the organization of 160 live-stock breeders' associations to encourage the use of better sires, and 182 cow-testing associations to eliminate unprofitable cows and bring about more economical feeding. Through these associations and those organized with the assistance of agents in previous years 127,835 cows were under test, resulting in at least 8,724 cows being discarded as unprofitable. Primarily, through these organizations, 10,986 farmers were induced to adopt balanced rations for their herds, and the following number of registered stock were secured at suggestion of agents: Bulls, 3,285; cows, 4,836; rams, 1,469; and boars, 2,974. The agents also brought about the transfer to other herds of 3,370 valuable registered sires by means of information given to individual farmers or through exchange lists published by the farm bureaus.

In order to increase the production of live stock to meet the war needs, farmers were encouraged by personal conferences at meetings and through circular letters and newspaper articles to raise more live stock, resulting in more than 40,000 additional cattle, more than 100,000 additional hogs, and 148,211 sheep being raised or placed on farms. In some States a special effort was made to save calves from being slaughtered for veal, resulting in 10,499 additional calves being raised. This work was carried on most extensively in Wisconsin, from which 2,459 calves from high-grade or registered stock were shipped for breeding stock to Missouri, Wyoming, and other Western and Southern States, due to this campaign.

The control of live-stock diseases was considered fully as important as growing more live stock, and the agents were instrumental in having 36,392 animals, principally cows, tested for tuberculosis; 197,508 animals were vaccinated for blackleg; and 235,866 hogs were vaccinated for cholera by farmers or veterinarians at the suggestion of agents, or by agents, for the purpose of demonstrating methods.

Realizing the importance of conserving succulent feed, especially for dairy cows, the county agents in several States carried on definite campaigns to encourage farms to build silos, which resulted in 7,245 silos being erected at their suggestion or as recommended. Silo-building campaigns were carried on most intensively by the county agents in Indiana, Wisconsin, Iowa, and Pennsylvania. The reports indicate that nearly a third of a million acres of silage corn were grown last year at the suggestion of county agents in the Northern and Western States.

LANDS ELIMINATED FROM AREAS OF FOUR U. S. NATIONAL FORESTS

Proclamations and Executive orders, signed by the President on November 27, after recommendations had been submitted by the Secretary of Agriculture, eliminated lands from the areas of five National Forests.

A proclamation eliminated approximately 46,020 acres from the Deschutes National Forest, Oreg. The main area affected comprises a tract about 7 miles square, situated near the present southwestern corner of the forest. This tract is practically a solid body of privately owned land, which is now alienated as the result of consolidation of forest lands through the means of land exchange between the Government and certain private land owners. Nearly 90 per cent of all the lands excluded are privately owned and only about 4,600 acres are Government lands. These areas are of little value for National Forest purposes, and at the same time possess only slight agricultural possibilities.

A proclamation eliminated 17,562 acres from the Ozark National Forest, Ark. These lands lie in scattered tracts within Stone County and Cleburne County. The vacant Government lands returned to the public domain amount to 14,335 acres, while 3,227 acres are appropriated lands. A land classification report submitted by the Forest Service indicated that these lands were not of value for forest purposes.

An Executive order eliminated from the Battlement National Forest, Colo., a tract of land comprising 5,102 acres. The land is situated about 5 miles south of the town of Mesa, Colo. The land classification report submitted by the Forest Service indicated that over one-half of this area was chiefly valuable for agriculture and that none of the land had any material value for forest or watershed purposes.

An Executive order eliminated from the Sevier National Forest, Utah, five small areas, comprising in all 2,805 acres of land. Of the lands eliminated, one portion is composed of a strip 5 miles long and one-half mile wide, situated southeast of Panguitch, Utah, the headquarters of the Sevier Forest. The lands have been classified as mainly agricultural in work carried on by the Forest Service.

A proclamation eliminating from the Custer National Forest, Mont., a number of areas embracing in all 13,302.61 acres. This action results from reports prepared by the Forest Service and approved by the Secretary of Agriculture. Over 92 per cent of the eliminated lands are already alienated and in private ownership. The boundary changes are made mainly to exclude these privately owned lands from the national forest. Of the total area of Government lands eliminated, embracing 1,024 acres, in numerous scattered tracts, over one-half are classified as mainly valuable for grazing purposes, while only 232 acres are reported to have value for agriculture.

GETTING AHEAD OF HESSIAN FLY.

In eastern Kansas, where danger from the Hessian fly threatened during the fall of 1917, a cooperative campaign was inaugurated by the Bureau of Entomology, United States Department of Agriculture, to secure the plowing down of stubble, and to urge the observance of safe planting dates. This is believed to have been responsible, at least in part, for the greatly improved conditions which prevailed during the spring and summer of 1918.

In Illinois, Indiana, and Missouri, where full advantage of the safe planting period was taken by growers, the current crops of winter wheat were excellent. Results obtained from its experimental plats have enabled this bureau to forecast Hessian fly conditions and thus to issue timely and valuable information to wheat growers.

LIVE-STOCK RECEIPTS GROW.

Increased receipts of cattle, hogs, and sheep at 32 markets during November, 1918, compared with receipts at the same markets in November, 1917, are shown in the monthly stockyards report just issued by the Bureau of Markets, United States Department of Agriculture. November receipts for both years, with 1918 figures first, were: Cattle, 2,183,545—2,158,710; hogs, 3,479,653—2,950,658; and sheep, 2,072,709—1,607,335.

Clubs Teach Southern Boys How To Help Make South Feed Itself

In addition to furnishing valuable instruction the boys' clubs in the Southern States provide a valuable means of increasing food production. Unorganized, the boys probably would have done little to help the South feed itself; but through the clubs they have been taught the principles of farming, and many of them for the first time have taken an interest in raising crops or stock, and have been started on the right road to successful farming.

The boys' agricultural clubs in the South are carried on by State, district, and county agents cooperating with school officials and business men. The number of boys enrolled in 1917 was 115,746, classified by clubs as follows: Corn, 40,394; potato, 3,441; cotton, 5,297; grain sorghum, 2,126; peanut, 3,157; calf, 2,968; pig, 31,375; poultry, 11,633; and miscellaneous, 4,087. The enrollment has been greatly increased in 1918, and it is expected that in addition to the regular enrollment there will be an emergency enrollment of 400,000 club members. Many farm boys under the age of 18 are being instructed by club agents and county agents in doing a man's work on the farm. The emergency enrollment is an effort to get hold of all boys who are taking on the added burdens of the war time and to give them credit for their extraordinary efforts.

The average yield of corn raised by the members of the boys' clubs throughout the 15 Southern States was 47.97 bushels per acre. There were 110 boys who made more than 100 bushels per acre, and some good records were made by boys in other farm crops.

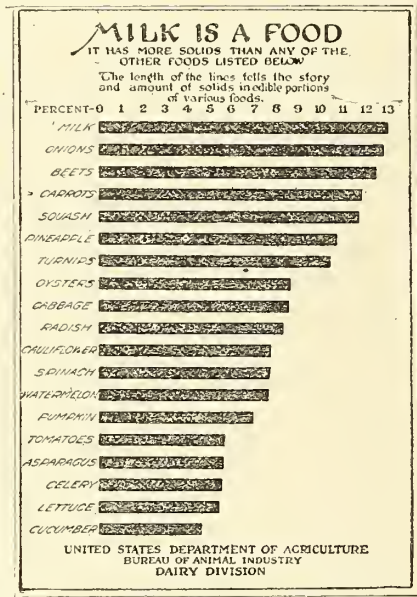
Farm makers' clubs for negro children were organized during the year in several of the States. Much work has been done every year in these States among the negroes, but the work was greatly enlarged during the past year.

Pig clubs conducted in cooperation with the Bureau of Animal Industry of the United States Department of Agriculture are popular. Thousands of pure-bred pigs have been distributed among the boys with excellent results. Pure-bred hogs are becoming well distributed throughout every part of the South.

Short, practical courses in agriculture for club boys are held in each county, where all the club members attend and receive instruction. In addition to the short courses held in the counties one is also held at the agricultural college where the prize winners are brought for a week or two weeks' instruction. The boys' clubs are stimulating farm boys to enter the agricultural colleges to continue their agricultural training. In one State in 1917, 218 club boys entered the agricultural college.

TAKES ACTION TO STOP SALES OF MISBRANDED "EGG SUBSTITUTES"

Misbranded "egg substitutes" which contain no egg and have little food value have been investigated by Federal food inspectors and action has been instituted by the Bureau of Chemistry, United States Department of Agriculture, in those cases which are in violation of the Federal food and drugs act, according to the report of the chief of the Bureau of Chemistry, recently issued.



A large number of "egg substitutes" have been put on the market recently as a result of the high price of eggs. Many of these preparations are labeled so as to convey the impression to the consumer that they have the food value of eggs and will serve the purpose of eggs in baking and cooking. Some of them suggest by the wording of the labels that they are made in whole or in part of eggs. The labels of some claim that 25 cents' worth of the substitute will take the place of three dozen eggs. The so-called substitutes sell at a price far in excess of their food value and intrinsic worth.

Analyses of many of the so-called "egg substitutes" show that they consist essentially of a mixture of starch and baking powder, colored yellow with a coal-tar dye to imitate egg color, and a few contain added casein, which is an ingredient of milk. The food value of such preparations is far inferior to that of eggs. Baking and cooking experiments made in the Bureau of Chemistry show that the substitutes do not have the effect of eggs in cooking or baking.

Manufacturers or others who ship or sell misbranded "egg substitutes" within the jurisdiction of the Federal food and drugs act will be prosecuted, say the officials in charge of the enforcement of that law. Such preparations also violate the food laws of many States.

MORE AND BETTER HOG-CHOLERA SERUM FOLLOWS U. S. SUPERVISION

Less than 1 per cent of anti-hog cholera serum manufactured under Federal supervision during the last year was found to be unfit for use and its sale prevented by Federal officials, according to an announcement by the United States Department of Agriculture. Of 271,402,530 cubic centimeters of serum made in licensed establishments, 2,488,661 was declared unfit. Corresponding figures for last year were 238,861,279 cubic centimeters of serum produced, and 5,036,875—or more than 2 per cent—was unfit, and likewise withheld from market.

This comparison shows that Federal supervision has increased the production of serum for combating hog cholera in the United States and has improved the quality. Serum declared unfit is not, however, necessarily injurious; it is frequently condemned merely for lack of potency. Hog-cholera virus used simultaneously with the serum is subject to similar control.

In its supervision of anti-hog cholera serum and virus manufacture, the Bureau of Animal Industry prevents either product of doubtful quality from leaving the establishment in which it is made. A knowledge of this policy by swine raisers of the United States, it is believed, will cause more herds to be vaccinated and result in greatly reduced losses from hog cholera.

The unused water from a spring or flowing well may be made valuable if brought to a watering trough, cooling tank, fish pond, or swimming pool, or harvested as ice. A saving may be effected by laying two lines of pipe in one trench. The engine which drives the pump may operate other useful appliances such as a dynamo, saw, washing machine, cream separator, or churn.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — JANUARY 8, 1919 — No. 23

GUARANTEE OF WHEAT PRICE "MUST BE MADE EFFECTIVE"

Secretary Houston and Food Administration Present Matter to Congress

Correspondence Details Facts for Consideration—Recommends Continuation of Present Federal Agency or Creation of New One

Secretary Houston has transmitted to Hon. A. F. Lever, chairman of the Committee on Agriculture of the House of Representatives, a memorandum prepared jointly by the Department of Agriculture and the Food Administration, suggesting a method for making effective the Government-guaranteed price for wheat of the 1919 crop. The Secretary's letter of transmittal and the joint memorandum follow in full:

DEC. 27, 1918.

Hon. A. F. LEVER,
House of Representatives.

DEAR MR. LEVER: I join the Food Administration in presenting, at the suggestion of the President, the matter of making effective the wheat price guarantee for the 1919 crop. The Government, as you know, has made a guarantee, and it goes without saying that it must be made effective. I know of no other method of doing this than that suggested in the attached memorandum, which I transmit herewith. If the department and the Food Administration can be of any assistance in this matter they will, of course, gladly place themselves at your service.

Sincerely, yours,

D. F. HOUSTON, *Secretary.*

The memorandum prepared by the Department of Agriculture and the Food Administration, referred to in the foregoing, follows:

What is known as the food control act of Congress was approved on August 10, 1917, and the fourteenth section thereof provided for the guaranty of prices of wheat "whenever the President shall find that an emergency exists requiring stimulation of the production of wheat, etc." Under this act it will be observed that Congress provided "that the guaranteed prices for the several standard grades of wheat for the crop of 1918 shall be based on No. 1 Northern Spring, or its equivalent, at not less than $2 a bushel at the principal interior primary markets." The section also provided for the President fixing such guaranteed price for wheat and giving notice thereof, and in pursuance of such authority the President has issued two proclamations hereinafter referred to.

By section 11 of said act the President is authorized, "from time to time, to purchase, to store, to provide storage facilities for, and to sell for cash, at reasonable prices, wheat" and other commodities therein named. This section necessarily

(*Continued on page 3.*)

RAPID EXPANSION OF EXTENSION SERVICE.

When the European War began the United States had just entered on the development of a national system of extension work in agriculture and home economics. This system was partly organized in all the States and in operation in about half the counties. Under the stimulus of war needs and with funds especially provided for the purpose by Congress in the food production act, the system was rapidly expanded and strengthened as a war emergency measure. The number of counties having agents was increased from 1,434 to 2,435 within the year; those with women home demonstration agents from 537 to 1,715, of which 200 were assigned to the larger towns and cities. The personnel of the boys' and girls' club work was proportionately increased.

Local organizations supporting and aiding the county agent work, such as farm bureaus and other forms of county and community organizations, were also rapidly developed. The number of such organizations in the South was increased from 3,507, with a membership of 113,316, in 1917 to over 5,000, with a membership of about 500,000, in 1918. The number of farm bureaus in the North and West increased from 278, with a membership of less than 100,000, in 1917 to 775, with a membership of about 300,000, in 1918. In several of the States every county now has a farm bureau or similar organization to aid the extension work.

RUSSIA TO SEE "MOVIES" OF AMERICAN FARMING METHODS

Department of Agriculture Sends Films for Exhibition Across Pacific

Answers Request for Propaganda of Better Production; Live-Stock Raising and Road Building Are Among Subjects

The United States Department of Agriculture has supplied to the Committee on Public Information more than 20 motion pictures showing agricultural production, highway construction, and forest work in this country, to be sent to Russia, at the request of the Russia Primorskoye Provincal Zemstvo, for use in depicting the advanced practices in these activities in America.

The Russian communication asking for the American motion pictures says, in part:

Look to America.

"The restoration of Russia as a powerful state on an economically sound basis can be accomplished only by means of development of her productive powers. This, in turn, could be made possible only by application in every branch of economical activity of the most modern machinery and methods of production. * * * As the vast majority of our people, especially of the rural districts, are intellectually not sufficiently prepared for the general application of more advanced methods and modern machinery, a thoroughly organized propaganda of this is considered by the Zemstvo as one of the most urgent needs of the moment * * *

More Power to Agriculture in 1919—Organize and Back the County Agents.

97351°—19

as an essential part of which it considers the moving picture, showing various processes of industries and agriculture, samples of various machinery and implements for their demonstration in actual work, and so on. All this we can not expect from anywhere but from the United States; and the sooner we could obtain these materials the greater would be their service."

Agricultural Films Supplied.

The Department of Agriculture films supplied for use in Russia include the following subjects:

Cattle and sheep raising on the national forests; lumbering yellow pine in the Southwest; lumbering lodgepole pine in the Arapahoe National Forest; national forests as recreation grounds; watershed protection and tree planting on national forests; work of the forests-products laboratory; construction of a concrete silo; construction of a wooden-hoop silo; cooperative cow-testing; from wool to cloth; poultry production; Uncle Sam's pig-club work; cooperative berry growing in the Pacific Northwest; testing cement and concrete for bridge building; construction of concrete, gravel, and macadam roads; and testing rock for road building.

County Builds Public Barns to Protect Cattle Burned Out by Forest Fire

In a forest fire that swept over St. Louis County, Minn., the night of October 12, farmsteads were destroyed, and such cattle as escaped were left utterly without shelter from the northern winter.

That was Saturday. Monday, while other agencies were looking out for the human beings left homeless, the farm bureau and the county agent laid before the county commissioners a plan for assembling and caring for the cattle in central barns to be built by the county. The plan was accepted, and the county agent was authorized to go ahead and build the barns.

Wednesday, the plans for the barns were completed, orders for material were being placed, and a construction crew was being assembled.

Friday, work on the barns began.

One week and one day later, Saturday, October 26, just two weeks after the fire, 11 central barns, each 30 by 70 feet, were completed.

The barns built for dairy cows have floors and gutters, stalls, mangers, watering facilities, and a feed room. Separate barns with large box stalls were built for dry cows and young stock. All the barns are substantially built and well lighted and ventilated.

Thus the farmers who were burned out will not need to worry about their cattle until grass comes again. The county hires men to care for the animals and to handle the milk produced. The farmers who live near enough to the barns are privileged to get milk from their cows for family use. All the rest of the milk is sold to help pay the feed bill. The remainder of the bill is footed by the county.

Hops Production Falls 62 Per Cent In Three Years; Less Brewing Done

Hops depend on the brewing industry for their consumption, and hence recent legislation in this country and great reduction of exports since the fiscal year 1916 have been responsible for the large reduction in the production of this crop.

The estimate of the Bureau of Crop Estimates for 1915 is a production of about 53,000,000 pounds; for 1916, 50,600,000 pounds; for 1917, 29,400,000 pounds; and for 1918, 20,200,000 pounds, a decline of 62 per cent in three years.

The production of fermented liquors in the United States, as ascertained by the Commissioner of Internal Revenue, was progressive to 1914, when the highest production, about 66,200,000 barrels, was reached. The product of 1916 was 58,600,000 barrels; of 1917, 60,800,000 barrels; of 1918, 50,300,000 barrels. According to the same source of information, 45,100,000 pounds of hops were consumed by brewers in 1911; 37,500,000 pounds in 1916; 41,900,000 pounds in 1917, and 33,500,000 pounds in 1918.

The exports of domestic hops reached as high a figure as 24,300,000 pounds in 1914, and in 1918 the quantity fell to 3,500,000 pounds. Imported hops ranged from 3,000,000 to 8,500,000 pounds from 1908 to 1914, and they rose to the extraordinary quantity of 11,700,000 pounds in 1915, followed by almost complete cessation of imports.

The price received for hops by producers in this country has been highly variable in a series of many years, and often from year to year. The December average was 11.7 cents per pound for 1915, 12 cents for 1916, 33.3 cents for 1917, and 19.6 cents for 1918, a year with production about two-fifths of what it was in 1915 and 1916.

Hop production is confined almost entirely to California, Oregon, Washington, and New York, in order of importance.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for assistant in agricultural technology, qualified as instrument maker, for men only, on April 1, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, and other branches of the departmental service in Washington, D. C., at entrance salaries ranging from $1,200 to $1,800 a year, will be filled from this examination. Applicants should at once apply for forms 304 and 2029, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

On February 4, 1919, an examination for lithographer, for men only, will be held to fill a vacancy in the Weather Bureau, Washington, D. C., at $1,200 a year.

Preparator in entomology, for both men and women, on February 5 and 6, 1919. One vacancy in the Smithsonian Institution, Washington, D. C., at $900 a year; several vacancies in the Bureau of Entomology, Department of Agriculture, Washington, D. C., at $720 to $900 a year will be filled from this examination.

Applicants for the above examinations should at once apply for form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Truck crop specialist, for men only, to fill two vacancies in the Bureau of Crop Estimates, Department of Agriculture, for duty in the field, at salaries ranging from $1,600 to $2,400 a year. Date of examination, January 22 and 23, 1919.

Wood technologist, for men only. Vacancies in the Forest Service, Department of Agriculture, for duty in Washington, D. C., Madison, Wis., or elsewhere; salary, $1,800 to $3,000 per year. Date of examination, February 4, 1919.

Cotton classer's helper, for men only, on March 12, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at $600 to $900 a year, will be filled from this examination.

Applicants for the above examinations should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

County Agents Make Use of "Show-Me" Method; Many Demonstrations in South

Under the supervision of county agents approximately 303,723 farmers in the Southern States conducted demonstrations on one or more lines of farm work last year. The demonstrations serve as object lessons to the farmers in the community. The farmer conducting the demonstration cooperates with the county agent, and keeps a close record of his work and the results. Ofttimes at the close of the demonstration or at the end of the season, if it is to be conducted more than one year, a meeting of farmers is called on the farm where the demonstration is held and the data collected are made public. This method of teaching better agriculture has proved very successful.

During the year ending June 30, 1918, the acreage in demonstrations in the 15 Southern States were as follows:

Corn, 799,476 acres; cotton, 501,729 acres; wheat, 156,660 acres; rye, 68,769 acres; soy beans, 77,597 acres; velvet beans, 540,448 acres; alfalfa, 44,526 acres; peanuts, 100,505 acres; Irish potatoes, 14,809 acres; sweet potatoes, 11,178 acres; miscellaneous forage crops for hay, soil improvement, etc., 364,741 acres.

Some of the miscellaneous activities of the county agents in assisting the farmers were as follows: Pruning and spraying 635,864 trees in home orchards as demonstrations to show the value of pruning and spraying; conducting the feeding demonstrations with 18,598 head of beef cattle; brought into the territory 58,607 beef cattle for breeding purposes; conducted 30,041 demonstrations in the feeding and management of swine; assisted in building 2,256 dipping vats and 5,517 silos; instructed 56,031 farmers how to care for farm manure; conducted 25,068 demonstrations with lime; advised 156,804 farmers in regard to the proper use of commercial fertilizer; furnished building plans for 3,028 farm buildings; installed 1,753 home water systems; put in 28,812 tiling demonstrations and 20,439 terracing demonstrations; 315,654 home gardens were planted or improved through the work of county agents. The agents made 885,966 farm visits and received 765,207 calls at offices or homes. Addresses were made at 78,996 meetings, with a total attendance of 3,880,403.

GUARANTEE OF WHEAT PRICE "MUST BE MADE EFFECTIVE"

(*Continued from page 1.*)

has a bearing upon section 14 and is always to be considered in connection therewith.

The act of Congress above referred to—section 19—appropriated the sum of $150,000,000 for the purposes of said act.

On the 14th day of August, 1917, an Executive order was made directing that "an agency, to wit, a corporation under the laws of Delaware be created, said corporation to be named Food Administration Grain Corporation, the capital stock of which to be $50,000, and all of the capital stock to be subscribed for at par by the United States out of the appropriation above mentioned. The capital stock of this corporation was afterwards increased to $150,000,000, which increase was likewise subscribed for by the United States and paid for out of the above appropriation.

The purpose of the organization of the Food Administration Grain Corporation was to furnish an agency, provided for under section 2 of the act to enable the United States Food Administration, under the direction of the President, to carry out the guaranty of the price of wheat made in pursuance of the fourteenth section of the act of Congress.

By Executive order of June 21, 1918, the Food Administration Grain Corporation was designated by the President as the "agency of the United States to carry out and make effective, subject to the control and direction of the United States Food Administration, the provisions of the guaranty" of the price of wheat made by the President's proclamation issued on February 21, 1918, which was for the "crop of 1918," and which fixed the price of wheat at Chicago at $2.20 per bushel and a relative price at other primary markets. It will be observed that the guaranty of the price of wheat under the proclamation of February 21, 1918, was limited to wheat "harvested in the United States during the year 1918 and offered for sale before the 1st day of June, 1919, to such agent and employee of the United States or other person as may be hereafter designated." And, further, that the agency of the Food Administration Grain Corporation, as at present created, is limited to the crop of 1918 and expires on the 1st day of June, 1919.

Subsequently the Grain Corporation increased the Chicago price to $2.26 per bushel and a relative increase at other markets in view of the increase in freight rates.

Acting under the act of Congress above referred to, the President issued his proclamation on September 2, 1918, fixing the guaranteed price of wheat "for the crop of 1919" at the respective principal primary markets, the price at Chicago being $2.26 per bushel and a relative price at the other primary markets therein set forth. This proclamation guaranteed the price of wheat to every producer of wheat as therein set forth, the only condition to receiving the guaranteed price being that "said wheat is harvested in the United States during the year 1919 and offered for sale before the 1st day of June, 1920, to such agent and employee of the United States or other person as may be hereafter designated."

Up to this time no agency of the United States has been created and charged with the duty of making effective the guaranteed price under this proclamation.

Wheat Crop of 1918.

The United States Food Administration Grain Corporation has undertaken "to carry out and make effective" the guaranteed price of wheat of the crop of 1918, and with its capital of $150,000,000, and its credit, combined with the export demand for wheat up to this time, the Grain Corporation has been able so far to maintain, in its integrity, the guaranteed price of wheat of the crop of 1918. The crop of wheat of the harvest of 1918 is estimated to be 917,100,000 bushels, and this resulted from the planting of 42,301,000 acres of winter wheat and 22,406,000 acres of spring wheat, or a total of 64,707,000 acres.

Up to the 1st day of November, 1918, there had been a movement of 530,000,000 bushels from the farms, and of this amount there was then in storage in elevators, mills, and terminals 287,000,000 bushels. On November 29 the total movement from the farms amounted to 588,000,000 bushels, leaving a balance of the crop of about 329,000,000 bushels yet to be moved from the farms, and on the same day there were 254,000,000 bushels in elevators, mills, and terminals, so that it will be observed that there is a very large amount of the 1918 crop yet to be moved from the farms, and it will take all the resources of the Grain Corporation and the most careful attention to every detail to carry out the guaranteed price of wheat of the crop of 1918, made by the Executive proclamation under the authority of the act of Congress. In fact, if the export demand for the wheat of the 1918 crop should diminish, it is possible that in order to maintain the guar-

anteed price it may be necessary that there be a further appropriation by Congress. On the other hand, if the demand for wheat for export should continue, it is hoped that on the 1st day of June, 1919, the Grain Corporation may have been able to carry out the obligations of the United States as to the crop of 1918 without impairing its capital of $150,000,000.

Wheat Crop of 1919.

The carrying out of the guaranteed price of wheat "harvested in the United States during the year 1919 and offered for sale before the 1st day of June, 1920" fixed by the President's proclamation of September 2, 1918, in pursuance of the direction of the act of Congress of August 10, 1917, presents a much more difficult situation, of which Congress should be advised, and such agencies should be created and appropriations made by Congress as will insure the carrying out of the guaranteed price "to every producer of wheat," in its integrity. We, therefore, deem it desirable to call the attention of Congress to the situation as it appears at present.

1. The number of acres of wheat planted for the 1918 crop was as follows:

	Acres.
Winter wheat	42,301,000
Spring wheat	22,406,000
Total	64,707,000

However, of the winter wheat planted about 5,000,000 acres were abandoned. From this planting there was (estimated) harvested 917,100,000 bushels. For the harvest of 1919 it is estimated that there have been planted 49,261,000 acres of winter wheat, an increase of 16.5 per cent over the winter wheat planted in the fall of 1917, for the crop of 1918. The spring wheat has not yet been planted, but if there is the same increase in planting of spring wheat in 1919 as there is (estimated) as to winter wheat, the total acreage of spring wheat may be about 26,000,000 acres or a total estimated acreage of about 75,000,000 acres. The above would indicate that the harvest of 1919 would be in excess of the number of bushels harvested in 1918.

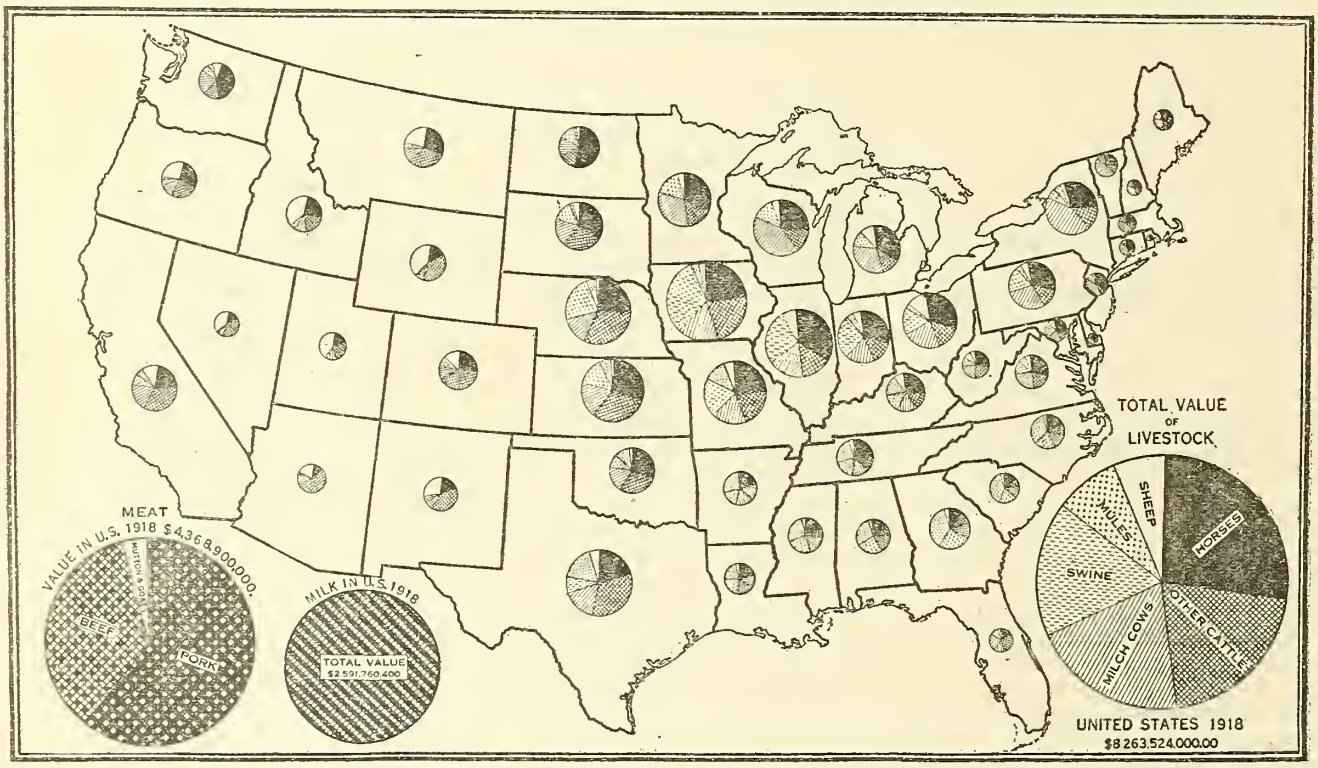
2. The normal pre-war annual export of wheat from the United States was, about, on the average of 10 years, 110,000,000 bushels. It is estimated that the total export of wheat and flour (in terms of wheat) of the 1918 crop will be about 310,000,000 bushels. The export of wheat of the 1919 crop can not be expected to reach the volume of the 1918 crop in view of the fact that Argentina, Australia, Canada, India, and other wheat-producing countries will be in the market with their current crops and the reserves which they have been unable to ship, which was not true at least for a considerable part of the time that the 1918 crop was being marketed, and the countries of Europe will be in somewhat better situation for home production of foodstuffs.

3. The pre-war domestic average consumption of wheat in the United States did not exceed 600,000,000 bushels, including seed reserved, and we think it may be assumed that the domestic consumption out of the 1919 crop, including seed wheat reserved, can not exceed 640,000,000 bushels as a maximum.

4. Reports indicate that the wheat planted in the fall of 1918 enters the winter in better condition and with the appearance of producing a larger per acre yield than the winter wheat planted in the fall of 1917.

5. The planting of winter wheat for the crop of 1919 is now estimated at 49,261,000 acres. If a like increase occurs in spring planting in 1919 over the planting in the spring of 1918 there would be a total acreage planted for 1919 wheat of 75,261,000 acres and a yield on the basis of present indications for winter wheat and of the 5-year yield for spring wheat of approximately 1,114,500,000 bushels, or an increase of about 197,000,000 bushels. If we deduct the quantity needed for seed for the 1920 crop, namely, 90,000,000 bushels, and that needed for maximum home consump-

WHERE LIVE STOCK—VALUE, $8,000,000,000—WAS RAISED IN 1918.



The circle at the right gives the comparative value of all live stock and is the key to the State comparisons shown on the map. The comparative values of meat and milk are shown in the two circles at the left.

tion, 550,000,000, we would have remaining for export and carry-over 474,500,000.

	Bushels.
Possible 1919 crop	1,114,500,000
Deduct probable seed requirements	90,000,000
Total	1,024,500,000
Deduct maximum home consumption	550,000,000
Remaining for export and carry-over	474,500,000

In addition to the above it seems probable that there will be a considerable carry-over from the crop of 1918. The quantity of wheat to be handled may, of course, be greater than this; it may be smaller. The planting in the spring of 1919 may not be as great as that assumed. Weather conditions, while more favorable than usual to date, may not continue favorable.

The following table will indicate the possible outcome if we assume the normal abondonment for winter wheat and the five-year average yield and a planting in the spring of 1919 equal to last year, with the average yield for the last five years:

	Bushels.
Winter wheat	697,900,000
Spring wheat	303,000,000
Total	1,000,900,000
Deduct seed and domestic consumption	640,000,000
Total	360,900,000

It would be unwise not to make provision for the possible maximum quantity to be handled.

6. In order to meet the competition from Argentina and other countries, it seems apparent that our wheat of the 1919 crop, for export, must be paid for here at the guaranteed price, and perhaps sold in competition at a price considerably below the guaranteed price. If we sell export wheat at a price below the guaranteed price there would be difficulty in holding our own people to a price for flour based on the guaranteed price of wheat, even if this were desirable.

7. The total estimated elevator capacity for carrying wheat is probably at a maximum as follows:

	Bushels.
Public terminals	150,000,000
Country elevators	100,000,000
Mill elevators	100,000,000
Total	350,000,000

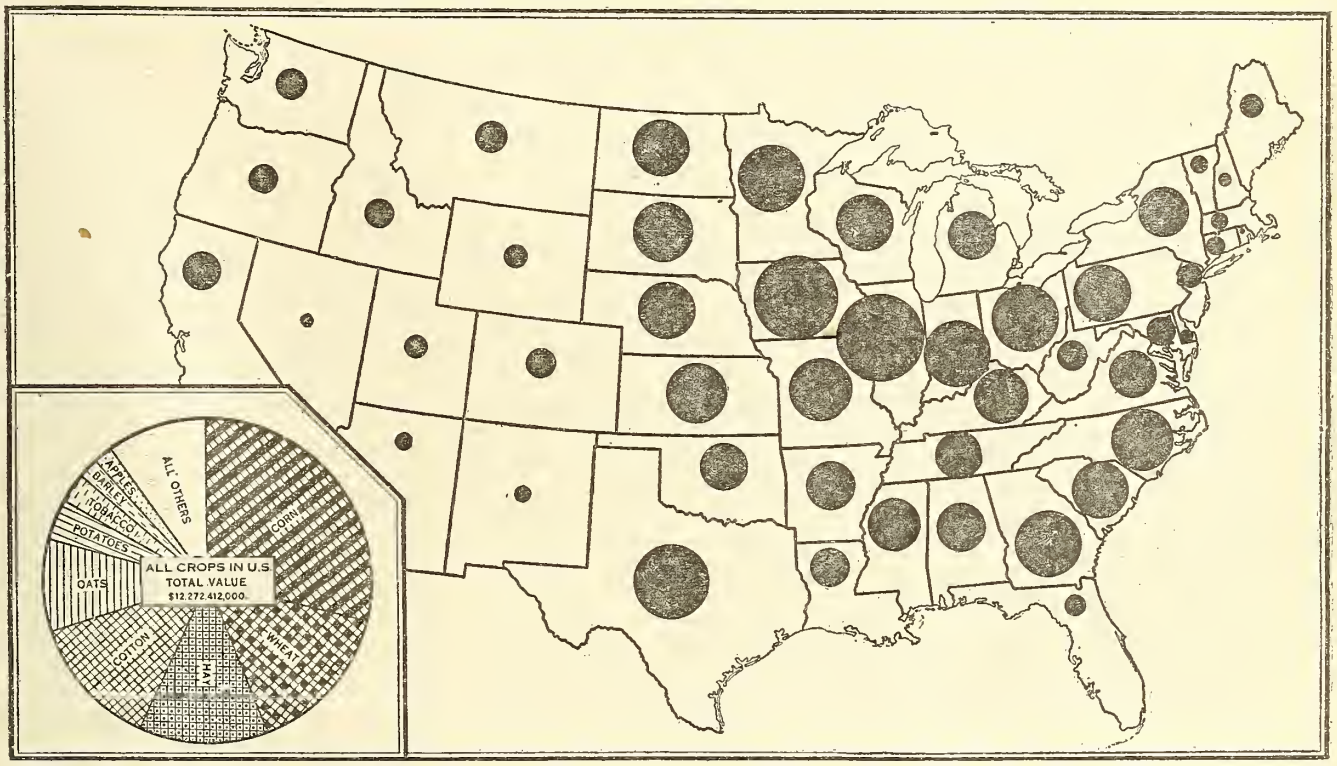
If the crop of 1919 should be to any considerable amount in excess of the 1918 crop, as now seems probable, it will be necessary to provide additional wheat-storage capacity to carry out the guaranteed price of wheat for the 1919 crop. Storage capacity is essential, for the guaranteed price is limited to the 1st of June, 1920, and producers will certainly rush their wheat to market in order not to be caught on June 1, 1920, with wheat on hand, and the United States must take the wheat when offered.

8. In conclusion we submit the following:

(*a*) The guaranteed price of "every producer" is only effective provided the wheat is "offered for sale before the 1st day of June, 1920." It will be impossible to carry out this guaranty as it is intended by June 1, 1920, and if producers can not sell their wheat to the United States before that date and are left with wheat on hand, it will be felt that the obligation of the United States has not been carried out in good faith. Therefore, Congress will have to extend this date with such provisions and safeguards as may be necessary to protect the Government from wheat harvested in 1920 being mixed with wheat of the 1919 crop.

(*b*) The present agency will have to be continued or a new one created with power to buy, store, and sell such wheat of the 1919 crop as may be offered to it, and sufficient appropriation will have to be made to furnish such agency with ample funds to at all times purchase throughout the United States, at the guaranteed price, such wheat of the 1919 crop as may be offered to it and also to provide storage facilities to take care of the same by lease or purchase of facilities now in existence or by building additional facilities or both. The appropriation will have

AMERICA'S $12,000,000,000 CROP PRODUCTION IN 1918.



The black circles show the comparative value, on farms, of all crops produced in 1918 by States. The large circle at the left compares the value of each crop.

to be on a basis to enable the guaranteed price to be maintained at all times by purchase of wheat with funds provided by the Government and without relying on outside credit.

(*c*) Provision may have to be made by Congress for the protection of the Government against wheat or flour brought in from other countries during the period when the guaranteed price is effective, and also to protect purchasers of such wheat so long as the same is in the country and not consumed. Such provision was made by section 14 of the act of August 10, 1917, but the same expires with the proclamation of peace.

EDGAR RICKARD,
Acting for Herbert Hoover,
U. S. Food Administrator.

WM. A. GLASGOW, JR.,
Chairman, Executive Board,
U. S. Food Administration.

D. F. HOUSTON,
Secretary of Agriculture.

WOODLOT MAY INSURE SAFE WATER.

On any farm a woodlot, grove, or windbreak is highly desirable, not only to supply fuel and small timber, but for its beauty and the protection it affords. If kept clean and free from stock, such wooded area, an orchard even, may be made to serve another useful purpose, that of supplying water, says Farmers' Bulletin 941, "Water Systems for Farm Homes." Forest-covered lands conserve rainfall and soil moisture, and in many instances afford ideal sources for farm water supplies. The farmer, therefore, who fences off his wood lot, or part of it, or forests an inclosed area and keeps it clean for water-supply purposes, is following closely the wise policy of cities and towns which, to insure safe, ample water supplies, acquire elevated, sparsely settled watersheds, and clean, forest, and patrol them.

LESS WOOL USED IN NOVEMBER.

Manufacturers used 13,000,000 pounds less wool in November than in October, 1918, November figures being 47,000,000 pounds, grease equivalent, compared to 60,000,000 pounds in October. Stocks of wool consumed in pounds, by classes, as given by the Bureau of Markets, United States Department of Agriculture, were: Grease, 28,283,416; scoured, 8,366,464; and pulled, 1,632,843. The report shows Massachusetts leading in wool consumed in November, followed in order by Pennsylvania, Rhode Island, New Jersey, New York, New Hampshire, Ohio, Connecticut, and Maine.

WHEAT FIGURE FOR DECEMBER MORE THAN DOUBLE 1917 MARK

Commercial Stocks Reported to Department Total 219,434,832 Bushels

Greater Quantities Shown for Other Cereals; Also Beans, Canned Tomatoes and Corn, and Sugar Increased

The commercial stocks of wheat reported in a survey made by the Department of Agriculture for December 1, 1918, amounted to 219,434,832 bushels. These holdings, by 10,669 firms—elevators, warehouses, grain mills, and wholesale dealers—were more than twice as large as the stocks held by the same firms a year earlier, the actual percentage being 206.1 per cent of the 1917 stocks. The figures refer to stocks actually reported and do not represent the commercial stocks of the country, nor do they include stocks on farms.

Visible Supply Figures Compared.

The commercial visible supply figures, as published by the Chicago Board of Trade for the nearest date (Nov. 30, 1918) show 121,561,000 bushels of wheat as against 21,031,000 bushels a year ago. Corresponding Bradstreet figures for 1918 show 131,584,000 bushels as against 29,633,000 bushels for 1917. As compared with the same date of last year, these figures, as well as those obtained by the more extensive survey, show a very great relative increase in commercial stocks of wheat on December 1, 1918.

Other Cereals, Flour, and Corn Meal.

The commercial stocks of other cereals reported for December 1, 1918, according to the department statement, were as follows: Corn, 13,193,789 bushels; oats, 61,670,351 bushels; barley, 74,400,787 bushels; rye, 13,936,010 bushels. These stocks represent the following percentages of the corresponding stocks on December 1, 1917: Corn, 129.0 per cent; oats, 94.6 per cent; barley, 110.8 per cent; rye, 154.2 per cent.

The commercial stocks of flour and corn meal, as reported for the survey, were: Wheat flour, white, 6,397,490 barrels; whole wheat and graham flour, 133,189 barrels; rye flour, 266,107 barrels; corn flour, 51,676,911 pounds; corn meal, 72,825,916 pounds; buckwheat flour, 13,548,309 pounds; mixed flour, 26,623,397 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 170.4 per cent; whole wheat and graham flour, 249.1 per cent; rye flour, 215.8 per cent; corn meal, 227.8 per cent; buckwheat flour, 220.4 per cent; mixed flour, 243.5 per cent.

Stocks of Selected Commodities.

Elevators, warehouses, and wholesale dealers reported stocks of beans amounting to 7,285,713 bushels, while wholesale grocers and warehouses reported the following commodities and in the amounts indicated: Rice, 49,998,810 pounds; rolled oats, 80,489,666 pounds; canned salmon, 96,893,624 pounds; canned tomatoes, 245,489,204 pounds; canned corn, 111,336,010 pounds; sugar, 164,356,634 pounds. These stocks represent the following percentages of the corresponding stocks on hand December 1, 1917: Beans, 154.5 per cent; rice, 62.6 per cent; rolled oats, 165.7 per cent; canned salmon, 94.3 per cent; canned tomatoes, 140.3 per cent; canned corn, 133.5 per cent; sugar, 125 per cent.

Stocks of condensed and evaporated milk were reported by condenseries, cold storages, warehouses, and wholesale grocers, as follows: Condensed milk, 49,878,129 pounds; evaporated milk, 146,757,968 pounds. The holdings of condensed milk reported for December 1, 1918, represented 119.7 per cent of the stocks held by the same firms a year earlier, while the holdings of evaporated milk represented 72.8 per cent of the December, 1917, stock.

WHY WET LANDS ARE PRODUCTIVE.

Wet areas in cultivated farm lands usually are the most fertile when the soil moisture is properly controlled, because generally they are depressions in which more or less of the richest soil from surrounding fields has been washed. Farm drainage transfers these unproductive places into highly productive land, thus increasing the profitable area and the acre yield, while removing obstacles that increase the time and effort required for farm operations.

Recognizing the importance of this possible conservation of man power, the Drainage Division of the Bureau of Public Roads recently has given first consideration to projects looking to the improvement of lands already under some degree of cultivation or needing only drainage to prepare them for the plow.

TO INCREASE RESISTANT SEED.

An effort is being made to increase the supply of seed of the variety of sweet corn resistant to the corn earworm and to determine its range of adaptability. Early-maturing strains have been isolated from the northern part of the region infested by the earworm.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Big War Garden Becomes "Piggery."

Twenty acres near Glendale, Ohio, donated for a community-garden project, proved unwieldy, and the Glendale Garden Club called in the county agent. He advised abandonment of the garden project, putting the entire tract in corn and getting enough pigs to provide a hoof market for the crop. So the garden club turned over its interest to a new organization called the Glendale Piggery. A farmer agreed to put the 20 acres in corn on shares, and from him the club bought 40 pigs with the understanding that he would maintain them until the corn crop was harvested and then feed them on the club's share of the crop. The club got nearly 500 bushels of corn as its share, and this corn is being fed to the pigs, which are making gains that promise a substantial contribution to the club's war-relief fund.

Fighting Loose Smut in Wheat.

Loose smut, which reduced the wheat yield of Shelby County, Ind., more than 100,000 bushels this year, meaning a loss of more than $200,000 to the farmers, is expected to be wiped out in that county within two or three years, as a result of the combined efforts of the county agent and farm bureau. A central treating station was established and 200 bushels of seed wheat were treated this fall by the hot-water method for the purpose of obtaining a strain of pure, disease-free seed. The treated seed was distributed among 40 farmers. Next year the wheat from the 40 treated plots will be sold as seed to other farmers in the county, and they in turn will sell their disease-free seed to others. The treating work will be done on a more extensive scale next fall. In the course of three years, according to farm-bureau plans, loose smut will have been eradicated and the average yield of wheat in the county should be increased at least 2 bushels an acre. This county grows 60,000 acres of wheat annually, and such an increase at present prices will add over $250,000 to the value of the crop.

Putting Pounds on Porkers.

Boys' and girls' pig clubs in Ames, Iowa, lately have been making big records in pig fattening. Information just received by the States Relations Service, United States Department of Agriculture, shows that one boy, for a period of 123 days, made a gain of 2.39 pounds a day on his pig; another, 2.26 pounds a day. Twenty boys have averaged 2 or more pounds a day.

"It is the best record from the standpoint of rate of gain that we have ever received," says Frank O. Reed, the pig club leader in Ames. Some excellent gains and unusual profits also have been made in beef fattening. Several members of the boys' corn club report over a hundred bushels to the acre, one showing 135, 126, and 124 bushel yields.

Limestone Gets Results.

Broome County, N. Y., this year used 8,000 tons of limestone, an increase of 3,000 tons over the amount used one year ago. This increase has been due to the emphasis which the farm bureau and county agent have placed upon the value of applying limestone to the soil. One farmer applied 1 ton of ground limestone an acre in 1917 at the time of seeding. In 1918 the limed area produced 5,324 pounds of hay, while the plot beside it having no lime produced only 4,017 pounds, 1,307 pounds in favor of lime. Another farmer top-dressed hay land, that had been mowed one year, with one-half ton of marl per acre. On the limed area he secured 4,200 pounds of hay and on the unlimed area 2,160 pounds, a difference of 2,040 pounds. Still another farmer used 1 ton of lime an acre at the time of seeding. On the limed acre he produced 5,324 pounds of hay and on the unlimed acre 2,904 pounds, a difference of 2,420 pounds in favor of limestone.

How Hog Cholera is Controlled.

Through work of the Bureau of Animal Industry of the United States Department of Agriculture 5,500,000 hogs were vaccinated against cholera in the last year, and average losses in cholera-infected herds were reduced to less than 13 per cent by the use of antihog-cholera serum. An increase of 168 counties working for hog-cholera control is considered notable, there being 467 counties in the country now engaged in this work, besides 17 States in which activities of this character are conducted.

Representatives of the Federal department visited 15,560 farms for the purpose of making investigations, diagnosing disease, and giving advice regarding control and eradication. Furthermore, 2,056 meetings were attended by 100,190 farmers who were interested in the control and combating of hog cholera. In addition, 2,236 cholera-infested farms were cleaned up and disinfected under the direction of the Federal specialists.

In order that only the best antihog-cholera serum may be used in actual field work, rigid inspection of all serum is necessary. During the last 12 months, of the 271,402,530 cubic centimeters of serum produced in licensed establishments, 2,488,661 cubic centimeters were destroyed as unfit for use. Similar inspection of hog-cholera virus was also conducted for simultaneous use with the serum.

Develops New Hybrid Cowpeas.

In its plant-breeding work with cowpeas, which involves several hundred hybrids and selections, the United States Department of Agriculture during the past year has developed several new sorts which give such promise that they are now being grown in quantity for distribution. These varieties are Potomac, Arlington, Columbia, White Hybrid, and Early Buff. Extensive field work is being conducted by the department with hybrids, especially in the wilt and nematode lands of the Southern States. Two hybrid selections, unnamed as yet, have been found highly resistant to both nematodes and wilt and are superior to other sorts for the production of seed and forage. These two selections are being grown in quantity for more extensive field tests next year.

Idaho Declares War on Rodents.

The farm bureaus of 15 counties in Idaho, in cooperation with the Biological Survey of the United States Department of Agriculture, this year treated 266,068 acres of land with poisoned bait to kill ground squirrels. According to the estimates of the farmers benefited, $1,168,074 worth of crops were saved, at a cost of $30,920. In Bear Lake County, following the squirrel-eradication campaign, the local bounty office recorded the receipt of 136,500 squirrel tails. In Bingham County one member of the farm bureau reported he had received $49.74 bounty on the presentation of 2,487 squirrel tails. These were killed by the use of only $1.70 worth of strychnine and saccharine. He saved his crops besides. In Blaine County the farmers

report a saving of $20 for every dollar expended, and the county commissioners have increased their appropriation for this work of poisoning squirrels from $300 for 1918 to $3,500 for 1919.

Planting Corn That Will Grow.

Connecticut's experience last season shows the value of testing seed corn. Corn shows in that State in 1917 were unique in that a 50-ear germination test was made of each entry. These tests saved the State thousands of dollars, disclosing that much of the seed corn of the 1917 crop was very low in germinating qualities. A campaign was inaugurated for the testing of all corn to be used for the 1918 crop. The work in many places was taken up through the schools, and teachers and pupils were taught to make tests. No excuse was left for any farmer to plant immature corn. In one county 700 samples showed only 30 per cent germinating power, and in another county only 10 per cent of the corn tested was fit for planting. The farm bureaus saved the day by carrying on so vigorous a campaign that all corn fit for planting was made available for home use or sale. In addition to supplying the States' need for good seed corn, the farm bureaus were able to get together six carloads of tested seed corn for shipment to North Dakota and Wisconsin, where also the situation was serious. This corn brought the farmers of Connecticut $15,000.

One Step Meets Two Needs.

Fields in Hamilton County, Ohio, that were acid in soil and broken by stone outcroppings have been made more productive and easier to plow by the one step of crushing the stone and spreading it over the ground. The stone is limestone with a high percentage of calcium. This method of solving the liming problem was developed by the county agent. Some men bought stone crushers and entered the business of grinding limestone.

Of the 5,000 tons of lime applied in Hamilton County on the county agent's recommendation 2,500 tons were ground on the 50 farms where the stone was found.

Improves Varieties of Soy Beans.

The increasing utilization of the soy bean as food and in numerous manufactured products has resulted in an increased public interest in this crop and a consequent larger acreage. The United States Department of Agriculture has extended its field work with soy beans during the past year, especially in connection with the testing of improved varieties selected from numerous introductions from Asia. Much hybridization involving the crossing of the nonshattering, smooth sort with standard commercial sorts has been done. Many of the most important varieties now grown are the result of the department's work. Several recently distributed are the Haberlandt, Virginia, Wilson-Five, Hahto, Biloxi, Black Eyebrow, Manchu, and Peking. The testing of varieties for food purposes has given a soft-boiling bean, Easy Cook, superior to any other tested, and the Hahto, a variety especially valuable for use as a green vegetable. Breeding work is being continued with varieties of high oil and protein content and high forage and seed yield.

Food Work at Public Markets.

All last summer a live public market in Pittsfield, Mass., brought consumers and producers more closely together. The home demonstration agents of Berkshire County, who work under the direction of the Department of Agriculture and the Massachusetts State Agricultural College at Amherst, took advantage of the gathering of people at the market and conducted a demonstration on food conservation and preservation. Questions were answered, people were urged to conserve and preserve, and canned goods were exhibited. From 75 to 175 people visited the booth each day. The same plan was carried out successfully at North Adams in the same county.

Hogs Salvage Damaged Wheat.

When a hail storm came crashing through Stillwater County, Mont., and beat 48,000 acres of choicest wheat into the ground just a few weeks before harvest, it left some discouraged farmers. It looked like a total loss, aside from the limited State hail insurance carried. Stillwater County, however, was fortunate in having a farm bureau and a live county agent. An executive committee meeting of the farm bureau was held at once, and it was decided that most of the wheat could be saved if hogs could be secured to clean up the fields. The county agent immediately got busy "hog hunting" among the other bureaus of the State, and the president of the county bureau went to Helena to get the State Council of Defense to authorize the advance payment of 50 per cent of the hail insurance money to help finance the purchase of the hogs. Both efforts were successful. The agent in Stillwater County inspected and accepted the hogs, they were shipped direct to the Stillwater County farmers, and 2,300 head were put to work salvaging the damaged wheat.

Farm Bureau Work in Arizona.

Just back of the San Francisco peaks in Coconino County, Ariz., there is a productive little farming community known as Kendrick Park. Twenty-six homesteaders have cast their lot in this place to battle with the elements at an elevation of 8,500 feet. Although at a high elevation excellent crops of oats, barley, and potatoes are grown, the dry-land method of farming being used. At a meeting called last June by the county agent, 24 of the farmers were present, the other 2 being away from home. A vacated lumber camp was used as a meeting place, the former dining room serving as an auditorium. It was plainly seen at once that these farmers were by no means "backwoodsmen," although they lived in a timber district on farms surrounded by tall pines and 20 miles from town. Committees were appointed to follow out the farm-bureau plan. This placed the community on an organized basis with several committees in charge of the different problems. It gave them a common interest and federated them with the other farmers of the county through the farm bureau.

Potato Marketing in Arizona.

The marketing of the potato crop furnished a leading project this year for the farm bureau in Coconimo County, Ariz. A marketing committee, with the assistance of the county agent, has established a better reputation for the potatoes in this county and has graded all tubers to conform to the United States No. 1 grade. A year ago no attempt was made to grade potatoes, but meetings were held and the farmers were acquainted with grades that were necessary to bring a top price on the market. A business house was induced to handle the regulation sorter and grader, and many have been sold to the farmers. This fall 90 per cent of the farmers graded, which means a better pack and a conservation of labor. Grading was taken up with the buyers. Sample sacks were opened, and if too large a per cent passed through the regulation-sized screen the rest were re-sorted at the farmer's expense. In some cases this was a costly experience, but a good reputation and a standardized product, meaning a good market, are considered as recompense.

DEVELOP VALUABLE TIMOTHIES.

Pure strains of timothies which give promise of being more valuable than ordinary timothy have been developed at Elmira, Ohio, by the United States Department of Agriculture, cooperating with the Ohio Agricultural Experiment Station. Of some of these promising varieties sufficient seed has been obtained for distribution.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JANUARY 15, 1919 No. 24

STRONG WORLD DEMAND FOR FOOD AND FIBER FORECASTED

Summary Given of Reports By Agricultural Commission to Europe

Americans See Need for World Program of Production and Interallied Agricultural Council. Observations Before Armistice

THE Secretary of Agriculture had hoped to present by this time in printed form the report of the commission appointed in August, 1918, to study agricultural conditions in England, France, and Italy, but there has been unavoidable delay in the preparation of manuscript and in the exchange of notes among the commissioners since their return. Hence it is deemed proper to issue a summary in this form, for immediate information, and to follow later with the reports in detail.

The commission consisted of W. O. Thompson, president of Ohio State University, chairman; Carl Vrooman, Assistant Secretary of Agriculture; R. A. Pearson, president Iowa State College of Agriculture; Thomas F. Hunt, dean of the College of Agriculture, University of California; Wm. A. Taylor, Chief of the Bureau of Plant Industry; David R. Coker, cotton grower, Hartsville, S. C.; George M. Rommel, Chief of the Division of Animal Husbandry, and George R. Argo, of the Bureau of Markets.

It is difficult to summarize the reports of the Agricultural Commission sent to Europe to study food-production conditions because they contain so many facts that in order to comprehend the whole situation one must read the reports in detail. Moreover, the observations were made prior to the armistice, which was signed on November 11, and the purpose of the visit was to ascertain conditions of European agriculture as they related to the agriculture of the United States under a continuance of the war. The commission arrived in Liverpool on September 5, and, returning, sailed from Liverpool on October 29. In some respects, therefore, the reports lose interest except for their historical value, but for the most part the data, the suggestions, and the recommendations possess large economic value in appraising agricultural responsibilities in the United States for the year 1919 and for the years immediately following, and they exhibit some new angles of mutual responsibility and interest.

Some of the outstanding facts are:

Great Britain's war agriculture in 1918 increased her home-grown bread supplies fourfold.

"The reports for the harvest of 1918 indicate that in the matter of breadstuffs England could supply herself 40 weeks of the year as against 10 weeks in 1916."—Thompson.

France's production of foods decreased sharply, especially in sugar beets, which were grown principally in the northern area where the ravages of war were greatest.

"Prior to the war France was producing about 800,000 tons of sugar and consuming about 600,000 tons * * *. The present production of France amounts to about 250,000 tons, or possibly with favored crop it may run to 300,000 tons."—Thompson.

France's production of breadstuffs, also, declined, though the production of 1918 was somewhat better than the production of 1917.

In Italy there has been some reduction of the cultivated area, but except for wheat the reduction in the volume of breadstuffs has not been very serious.

"The yield per acre also has decreased, the two chief direct causes being shortage of fertilizer and uncontrolled growth of weeds."—Pearson.

Italy's wheat production in 1918 was estimated at 43,000,000 quintals (220

(Continued on page 15.)

GROW OWN FOOD AND FEED WISE POLICY IN SOUTH NOW

Secretary Replies to Letter Telling of Leaning Toward Cotton

Tells of Preparations by Department and Agricultural Colleges for Presenting Suggestions for Farming Work in 1919

The following letter from the Secretary of Agriculture has been sent to John M. Parker, of New Orleans, Federal food administrator for Louisiana:

"I have your letter of December 16, in which you call attention to the fact that there is a feeling among the farmers that it would be to their advantage to plant the maximum cotton crop during the coming year.

"The agricultural colleges, in cooperation with the Department, through the joint extension forces, have been organizing for several weeks past for the purpose of bringing before the farmers in the several States, early in the new year, definite suggestions for the operations of 1919. In the cotton States these joint forces will hold neighborhood meetings, beginning in the early part of January and continuing for such time as may be necessary to cover the territory. At these meetings the farmers will be furnished with the latest information that the Department and the colleges have been able to gather concerning the prospects for the next year. Generally speaking, the extension forces are agreed that the wise policy for Southern farmers to pursue in 1919 is to make sure the production of their own home supplies of both food and feed. Attention will be called to the fact that an average yield of cotton on the acreage of 1918 will produce two to three million bales more than was produced in 1918.

"On account of the unsettled conditions in Europe, it is impossible to make any definite forecast of the economic situation, but certainly it is a safe policy to pursue for the farmers of the South to raise their own home supplies of both food and feed."

After-the-war Problems of the American Housewife—See "Better Homes Make a Better Nation," Page 4.

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DEVELOPS NEW SOURCES OF FIBERS FOR BINDER TWINE

Department Cooperates in Work that May Largely Meet Home Demand

Introduces Machinery Into Philippines and Encourages Planting—Efforts Extended in Porto Rico—Hemp in United States

That there are possibilities of the United States becoming to a considerable degree independent of Yucatan for its supply of binder-twine material is shown by developments made by the United States Department of Agriculture in recent years in the production of sisal and henequen in some of the insular possessions and the production of hemp fiber in the United States. Manila maguey has been grown in the Philippines many years and sisal has been introduced into those islands since the American occupation.

Work carried on by the department in cooperation with the Philippine Bureau of Agriculture during the past year resulted in the introduction into the Philippines of the first really efficient machines for cleaning these fibers. Two machines in the islands are fully equipped and in operation and a third complete outfit has been forwarded. Plantations for supplying leaves for the machines are being planted on a large scale and better methods of planting, cultivating, and harvesting are being practiced.

The cultivation of fiber plants in the Philippines has been confined chiefly to areas near the coast where the leaves could be soaked in the sea water to soften the pulp and facilitate cleaning the fiber by hand. Cantala, or Manila maguey, was produced more extensively because the plants were more easily obtained and this fiber was more easily cleaned by hand. More than 14,000 tons of this hand-cleaned fiber were exported from the Philippines during the calendar year 1917. Its value for use in binder twine is greatly impaired because the salt from the sea water in which the leaves are soaken attracts crickets and grasshoppers, which destroy the bands while the bundles of grain are standing in the field.

Increase Sisal Plantings.

It is found that sisal is not only superior to maguey, as was well-known before by manufacturers in this country, but that it is cleaned to better advantage by machines. Larger proportions of sisal, therefore, are being planted. A second introduction of a half-million sisal plants from Hawaii has been secured. The use of machines for cleaning the fiber will permit the planting of sisal over large areas suited to its growth away from the coast. The work is now started under most favorable conditions for the development of sisal production on a large scale in the Philippines.

Work on the development of improved strains of sisal and henequen by methods of selection is being continued on an increasing scale in Porto Rico. Trial plantings of sisal and henequen have been made in the dry lands near Quebradillas, in northwestern Porto Rico, and also on Mona Island, where several thousand acres of unused land are apparently adapted to the production of these fiber crops. Propagating stock of these plants has also been furnished for experimental planting in Central and South America, with the hope of developing new centers of production that may become available as the increasing demand for binder-twine fibers exceeds the supplies from Yucatan.

Hemp-Fiber Production.

The selection of hemp for securing and maintaining improved strains is being continued and seeds of the strains that have been demonstrated to be of superior value are sent to growers who raise the seed commercially. This method has been followed during the last five years, so that most of the hemp now grown in this country consists of these improved strains.

One of the most promising recent introductions is the Tochigi variety from Japan. A plat of this variety grown at St. Joseph, Mo., in 1917 gave an excellent yield of seed, especially on loess soil, and this seed was of good quality and high germination, notwithstanding three severe frosts before the plants were harvested. This season about 30 acres of hemp seed were cultivated in Missouri.

Early maturing varieties, chiefly of Italian origin, are being grown at Madison, Wis., in cooperation with the Wisconsin Experiment Station. This is the third year of selection there for some varieties, and the results promise the successful production in that State of seed of hemp fully equal to the Ferrara of northern Italy. Several acres of broadcast hemp for fiber were grown by Wisconsin hemp farmers from seed of the Ferrara selection produced at Madison in 1917.

The hemp growers of Wisconsin, organized and encouraged by the cooperation of the State Experiment Station, increased their planting last year to 7,500 acres, compared with 7,000 acres the preceding year, although the unfavorable market which was maintained by dealers and consumers until after the close of the planting season resulted in a decrease throughout the country of about 12,000 acres from the record crop of 41,000 acres the year before. Even this reduced acreage is more than double the average of the last 30 years. And it is all needed, for with supplies from Russia and Italy cut off, the hemp mills not only of the United States but of the allies also must depend upon the hemp produced in this country. Foreign inquiries are being received, and it is reported that some American hemp has been sold for export, the first instance in half a century.

FARM BUREAUS SERVE 85 PER CENT OF CALIFORNIA'S FARMS.

Eighty-five per cent of the farms of California are now included in the farm-bureau system organized by the U. S. Department of Agriculture and the State college of agriculture. Land settlements and colonization enterprises in the more thinly settled counties probably will require that the system be extended. The 20,000 members of the farm bureaus have been answering the requests made upon them by the Federal Government during the war and are prepared to go forward this year to meet the necessities.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended January 4, 1919:

Small Sawmills, Their Equipment, Construction, and Operation, Department Bulletin 718.

Food Habits of the Mallard Ducks of the United States. Professional Paper. Department Bulletin 720.

Drainage Methods and Foundations for County Roads. Professional Paper. Department Bulletin 724.

The Work of the Yuma Reclamation Project Experiment Farm in 1917. Bureau of Plant Industry, W. I. A. Circular 25.

The Work of the Scottsbluff Reclamation Project Experiment Farm in 1917. Bureau of Plant Industry, W. I. A. Circular 27.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WOULD HAVE SINGLE VARIETY OF COTTON IN COMMUNITIES

Department Specialists Advise Placing Industry on Organized Basis

Buyers Pay More for Product that Can Be Had in Large Lots—Mixing Seed Degenerates Varieties

That all cotton production should be placed on an organized community basis appears to be more desirable with each additional season, say specialists of the United States Department of Agriculture.

The most direct and obvious advantage of uniting on a single variety, they say, is that each farmer in the community can get more for his cotton than if many different kinds are raised. There is no question that large buyers and manufacturers will pay more for cotton of one kind that can be had by the hundreds of thousands of bales than for cotton that can be had only in small lots, with each farmer feeling at liberty to grow a kind different from his neighbor's.

Mixing Seed Hurts Varieties.

The result of mixing the seed of many varieties at public gins and of planting such "gin-run" mixtures of seed is a general and continuous degeneration of varieties. This can be counteracted only in a partial and temporary way by the breeding and distribution of seed of select stocks, which soon lose their purity and uniformity when grown in mixed communities.

The chronic deficiency of pure seed, even of the oldest and best-known varieties, is traceable largely to the lack of communities where seed of one variety can be grown without contamination. The advantages of community production of one kind of cotton and adequate supplies of pure seed have been demonstrated conclusively in the Salt River Valley of Arizona, which now has the largest body of uniformly pure cotton in the world. The first communities that were organized in different parts of the cotton belt are being utilized in the same way as sources of supply of pure seed for other communities that are beginning to organize.

Cotton's Relation to Food.

While it is important that more diversified farming be put into practice in most sections of the South, and the need of each district producing its own food as far as this can be done is recognized, the fundamental relation of the cotton industry to other crops should not be overlooked, the specialists say. In humid regions the effect of the boll weevil is to compel or at least to encourage the replacement of cotton with other crops, but in the drier parts of Texas and the adjacent States the relative importance of cotton as the chief reliance of the farmer has increased during the period of weevil invasion, because the pest is less injurious in dry climates.

While a large aggregate volume of other products is grown in the dry regions, cotton serves as the basic crop, being sufficiently reliable to keep the people on the land, so that the other ventures are made possible.

DEPARTMENT ENDS MEAT SELECTION, RECOMMENDS NEW SPECIFICATIONS

Selection and grading of fresh beef for the Army, Navy, Marine Corps, and the allies, which was begun at Chicago, November 4, by the Bureau of Markets and the Bureau of Animal Industry of the United States Department of Agriculture, and immediately extended to other principal packing points, was discontinued December 21, owing to the discontinuation of allotment of beef orders through the Food Administration for the fighting forces. The Army and Navy have now relieved the Department of Agriculture, which was requested to perform the service temporarily.

The Department of Agriculture has recommended the permanent adoption of essential modifications in the former specifications, so as to provide for acceptance of well-finished, light-weight cattle and heifers of suitable quality, and for basing purchase prices on specified grades of dressed beef. The effect of these modifications is to throw the influence of Government beef purchases toward the establishment of natural differentials in market prices of live cattle.

The application of this policy to Government purchases of beef has an important bearing on the economic welfare of the cattle industry through proper recognition on the markets of the different grades of cattle, with consequent encouragement of production of the better grades.

MORE OATS RESULT OF SEED TREATMENT.

More than 50,000 farmers cooperated with the agricultural county agents last year in the 33 Northern and Western States in treating seed oats for smut. Their efforts resulted in more than 1,000,000 additional acres of oats being sown with treated seed. Based on reports made the previous year the results of this work increased the yield an average of about four bushels an acre, and this increase was brought about in most cases at a cost of less than 10 cents an acre.

More Worsted Manufacture in U. S., Machinery Report Shows

An increase in the manufacture of worsted goods in the United States is indicated by the monthly active and idle wool-machinery report just issued by the Bureau of Markets, United States Department of Agriculture. Only 18 per cent of the total worsted combs reported were idle on December 2, 1918, as compared with 24 per cent on November 1, while 27 per cent of worsted spindles reported were idle on December 2, as compared with 30 per cent on November 1.

A slight increase is shown in the case of idle wool machinery, the figures for sets of cards being 14 per cent on December 2, as compared with 12 per cent idle on November 1.

Domestic wool is used largely in the manufacture of worsted goods, and the report indicates a fair demand for these wools.

About 77 per cent of all looms making woolen goods were in operation on December 2, 1918, while 86 per cent of woolen cards, 82 per cent of combs, 84 per cent of woolen spindles, and 73 per cent of worsted spindles were also in operation on that date. With reference to machines engaged on war orders the report shows a slight decrease in the case of active woolen machinery and a marked decrease of active worsted machinery.

FOOD CROPS GROW 43 PER CENT.

As a result of the food-production campaign carried on by the experiment station and cooperating agencies in Porto Rico, it is reported that the area devoted to food crops was increased 43 per cent during the fiscal year 1918. Large areas usually devoted to a second tobacco crop were planted to corn and beans. During the year Porto Rico became an exporter of beans instead of a heavy importer. It is estimated that more than 25,000 domestic gardens were planted during the year. Cooperative work in rice growing was begun in different parts of the island to determine the possibility of developing this industry. Porto Rico imports about $5,000,000 worth of rice annually, and it is believed that at least half of this amount could be produced at home.

BETTER HOMES MAKE A BETTER NATION

What Home Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry this Message in Town and Country

Standards of household efficiency set by war necessities must be continued during peace to strengthen America at its heart—its homes. American women should not abandon the benefit of thrift lessons learned during the war, says Miss Florence E. Ward, in charge of extension work with women for the United States Department of Agriculture in the 33 Northern and Western States.

"The Government threw out its challenge to women when the war began," said Miss Ward. "They met it gloriously, backed by Government created and supported agencies such as the home-conservation division of the Food Administration, the conservation section of the Fuel Administration, the women's committee of the Council of National Defense, and the home-demonstration agent work of the States Relations Service, Department of Agriculture. Seventeen hundred home-demonstration agents, cooperatively employed by the Department of Agriculture and the State colleges, have worked during the past year with patriotic zeal in direct contact with millions of homes where quick adjustments had to be made in every phase of housekeeping activity, with the well-known results of enormous saving and increased efficiency. In the Southern States these agents were well established and had proved their value before the war began; in the North and West the work was comparatively new and conducted largely on war-emergency funds.

Thrift Must be Followed.

"Again, at the beginning of the period of readjustment the superb spirit of American women is called upon for service vital to the future of our country and the world. Thrift must be urged in all lines. Simple living and reasonable economy in the consumption of all commodities are imperative, not only from motives of self-interest but from humanitarian motives that we may have money and goods to spare to countries whose industries have been ruined and whose people have been stripped of even the barest necessities of life.

"Women must carry over into the readjustment period, and thereafter, war-time home production and conservation of food, distribution of income, saving and investment, thrift in clothing, salvage of discarded textiles, system in housekeeping, improved household equipment, also community organizaion and cooperation for richer social life and for such enterprises as laundry, buying clubs, and food preservation plants.

Home Demonstration Permanent.

"In this great undertaking of American women the home demonstration agent will play an important part. Armed with facts gained from home economics laboratories and methods pooled from the successful experiences of housewives, she will be welcomed in communities at this critical time much as the efficiency expert is welcomed in business institutions called upon for maximum results.

"This worker will bring to women of all conditions, sects, and races in both city and country the message of the Government and State institutions regarding best practices to meet present needs. She will stimulate efforts for thrift in matters of food, fuel, clothing, and for conservation of labor and natural resources. She will show the relations between diet, health, labor, and income; she will help women to work out the problems of their homes so as to secure a maximum of efficiency with a minimum of effort.

"It is anticipated not only that the present force of home-demonstration agents will be continued but that the number will be increased and that the financial support for the work thus far largely provided by Federal funds, will be shared by self-reliant local organizations which, through personal pride and responsibility, will make the work effective in meeting the needs of the communities."

WAR-FOUND POWERS AND WAR-BORN THRIFT MUST CONTINUE IN AMERICAN HOMES DURING YEARS OF PEACE.

Every American home is now called upon to play its part in the national program of reconstruction. Every home maker is now needed for a service as exacting and as far-reaching as was her war service of the past year.

Standards of home efficiency set by war necessities, new-found powers and skills, must now be capitalized for the great task of making the thrift impulse—so powerfully stimulated and so productive during the war—a permanent habit in American home life.

War economies and systematic war savings must be the first step toward the greater task of dividing family wants between essentials and nonessentials—budgeting household expenditures and setting up permanent business methods in the home.

Thrift in matters of food, fuel, and textiles, faithfully carried on during the war, must be made the basis for a new era in the intelligent use of world necessities, so that America may never again be accused of the wanton waste and extravagance of pre-war times.

War pointed out the close relation between proper living conditions and national health. The results of the examination of millions of the choicest manhood of our country, with the consequent rejection of nearly one-third because of physical disability, has pricked the bubble of self-esteem of the American home maker and showed the necessity for a definite move in prenatal care, care and feeding of children, home sanitation, hot lunches for school children, personal hygiene, home nursing, and the eradication of preventable disease.

The awakening of patriotism on the part of foreign-born women in larger cities through food-conservation classes clearly calls to our attention the importance of including foreign-born housewives in home making and community interests as a part of the work in Americanization.

FLORENCE E. WARD,
In Charge of Extension Work with Women
in Northern and Western States.

THEY CAN COCKERELS IN ALABAMA AND THEY MAKE MONEY AT IT, TOO

"Keep him until I get back," called a soldier boy as he threw a live rooster out of the car window of a troop train passing through Coker, Ala., not long ago. Evidently no one on the platform of the little station was willing to become the custodian of the doughboy's pet, at least none came forward to assume the responsibility; and although its legs were neatly tied with a blue ribbon (no, not a

poultry show ribbon), the surprised and travel-weary cockerel limped away. And "thereby hangs a tale."

Mrs. J. E. S. Brown, of Coker, who is a home-demonstration agent of the United States Department of Agriculture and the State agricultural college, owns a flock of chickens. She was about to give a demonstration in chicken canning and was anticipating the event with great pleasure. Whether or not she had intended to use one of her own birds for the purpose does not appear, but a few days before the demonstration she happened to size up a particular lot of refractory fowls that insisted in roosting on the low limb of a tree, notwithstanding that near by there was a model and inviting poultry house with all modern conveniences.

One late afternoon, just before the county short course, according to the field report, the agent saw one of the young fowls lamely hopping along, trying to mount the limb with the rest of his feathered kin. It was the soldier's chicken.

Angry at the thought that some would-be thief had sought to rob her flock, and had tied the legs of one of her birds in preparation for a "haul," Mrs. Brown made a quick decision. To foil the thief and keep the cockerel she would fatten him for the demonstration. She did. This bird made the "supreme sacrifice" before a large audience of canning club members. He is canned and by this time has been sold, can and all, for the benefit of the Red Cross.

Incidently they know how to make money out of canned roosters down in Alabama, as will appear from the following extract from its report:

"Dovie Crowder, of Coker, is taking orders for canned chicken and chicken by-products. She puts 1 pound of meat in a No. 2 can, and the gravy adds from 4 to 8 ounces, and she receives 80 cents a can. She claims she makes on this, and she does so by using the bits of scrap meat in soups and gumbo. One rooster brought her $3.50 by this method."

PLANS HOME WORK FOR GIRLS.

How much work in the home should a girl from 10 to 18 do? The home demonstration agent in Hampden County, Mass., has been asked to plan a course of home training for the school girls to do outside of school. This will appeal to the mothers for but few of them do not realize the importance to a girl of this kind of training. The difficulty has been to decide just how much should be expected from a girl in school, and in many homes, it is believed, not enough has been required because the mother preferred to err by being too lenient rather than too severe.

What Home Demonstration Work Did in North and West Last Year

More than 1,000 women home-economics workers were employed in the 33 Northern and Western States last year teaching the imperative necessity for producing and conserving foods. Fewer than 200 were engaged in this work in 1917. Of the 1,000, 96 were employed in cities, 361 in single counties, and the rest in State-wide home-demonstration work. These agents taught the conservation of surplus food products by means of demonstrations, exhibits at fairs and local stores, food shows, and bread kitchens, and trained volunteer workers to assist in the work. In one State an extension force of 3 home-economics workers gave instruction in food conservation to 2,200 local leaders. These local leaders reached 33,000 women who canned 8,250,000 quarts of fruits and vegetables during the season.

HOW ORGANIZED CANNING SAVED FOOD.

As a result of well-organized campaigns carried on in several of the Northern and Western States last year to conserve food by canning and preserving, the county agents arranged for 7,631 canning demonstrations for women aside from club work, and more than 4,500,000 additional quarts of fruits and vegetables were canned. Assistance in home gardening was given to 160,163 persons, while 82,434 farmers were given information in regard to the best methods of storing fruit and vegetables.

Among the outstanding results of the home-demonstration work are more and better home gardens, both in the country and in the towns, more home poultry flocks, many community drying and canning kitchens, large quantities of canned, dried, and stored food, and increased use of milk and milk products. The home-demonstration agents have taken an important part in the special food campaigns, such as those for increased consumption of potatoes, cottage cheese, and home-grown products.

Hot Meals for Farmers in Fields; Fireless Cookers Show Them How

"Look here, boys; why can't we get that little lady to show us how to rig up one of these cooking boxes?"

This from a farmer near Lexington, Davidson County, N. C., to the field hands with whom he was working, after they had peeped into a home-made fireless cooker. "We could make 'em, and have a hot dinner right down here in the field."

The "little lady" was a home demonstration agent of the North Carolina Extension Service and the States Relations Service, United States Department of Agriculture. She had just been telling a number of country folk, mostly women, how easy it was to make tender "spring chicken" out of a tough rooster by using a home-made contrivance. Her fireless cooker consisted of a crock, a lard can, and some excelsior; the latter stuffed between the crock and can to retain heat. She explained that, after starting the cooking process on a range or stove, it is necessary only to put the vessel containing this food in the crock with a hot disc—the cooker will do the rest. To prove it she then and there served a regular dinner to the onlookers, the meat portion of which was a rooster that had survived many hard winters. The slow cooking had made it so tender that the meat fell off the bones.

That settled it. Farmers near Lexington are now making these cookers; farmers' wives are using them; Davidson County, N. C., is converted. The demonstration agent says that any kind of containers may be used, and any kind of soft material utilized for filling the space between them—straw, sawdust, paper, or excelsior, for instance. Keeping the cooker heat-tight is the important thing.

Try Some Tasty Jerked Venison; Here Is How It May Be Prepared

Have you ever eaten jerked venison? Those who have, especially the folks in Wyoming, pronounce it a very delectable dish. Here's the recipe for jerking and drying, just sent in from the field by a representative of the States Relations Service, United States Department of Agriculture:

"Cut into strips 2 inches wide, about one-half inch thick, and as long as the particular muscle extends. Mix about 2 teaspoonfuls of salt to 1 pound of meat, rubbing in well. Smoke with nonresinous wood, such as alder, hickory, bark, etc., for about an hour. Hang over stove to dry. Dry until product breaks when bent."

This representative, an assistant in boys' and girls' club work in the Northern and Western States, recently gave a demonstration of the process, right in the mountains of Wyoming, before hunters, forest rangers, and mountaineers with their families. Eighty per cent of

the people living in the valley attended. He showed them how to jerk and can other wild meat and game, and how to kipper fish—salmon, and trout in particular. Also he canned meat at 10,500 feet altitude, "for demonstration in the Washington office" and "to determine time-tables and keeping qualities for people in that section of the country."

Nine Children and 28 Thrashers Fail to Daunt Minnesota Woman

This story is about an American farm woman who probably would be surprised that anyone would consider what she is doing as unusual or noteworthy.

In Minnesota last fall the extension specialist in home nursing, working under the Department of Agriculture and the Minnesota State Agricultural College, was in the midst of a busy week of measuring, weighing, and examining children. To further the child-welfare campaign was her work for the time being.

Into the room came breezily a fresh, handsome, and much-tanned young woman with six children.

"I will have to hurry," she explained, smilingly; "you see we have thrashers—28 of them—to-day, and they certainly have fine appetites this busy season."

The group of children, dressed plainly but neatly, all barefooted and bareheaded, would have attracted attention anywhere. It was evident that soap, water, and sunshine were in constant use in that family, but it was the splendid health, beauty, and poise of the mother which held the eye.

Only Four Under Six.

"I have only four who are under the required 6 years—the other two came in the machine to help me with the babies while I manage the wheel," she explained to the young woman in charge.

All four youngsters measured and weighed up to standard and their physical condition under examination was recorded as "prime."

"But who is helping at home with the housework and meals?" the specialist asked, lifting the oldest boy from the scales.

"Oh, I have two daughters 13 and 14 years old who are doing the dinner dishes and starting the supper," came the surprising reply.

The specialist's eyes opened and she frankly stared, for the mother with the little brood of six did not look over 25. Then, conventionality forgotten, she leaned forward and asked, "But how old are you and how many children have you?"

"Thirty-three years old, and I have the best husband in the world and nine children," replied this modern daughter of Minnesota.

Happiness from Work.

"I am the happiest of women, and the harder I work the happier I am. Each child makes me feel I must fill a bigger place in the world. This year because of the shortage of help, I have had to work out in the fields, as the grain seemed to ripen all at once; but I enjoyed it, for the work went well in the house. My girls are clippers to work."

Stepping lightly as a girl she gathered her brood together and loaded them into the car. With a final hand waving the big machine swung down the road under her capable hands toward the country home where that American family is growing up with the best of food, the purest of air, and the best of surroundings. The specialist drew a long breath as she went back to the examination room and smiled whimsically.

"I'm thinking I'd be holding a new job if every child had a mother like the one those children have, and a child-welfare campaign wouldn't be ranked a necessity."

MAKE THE FARMHOUSE CHEERFUL.

Apart from the esthetic value to be derived from it, beautifying the farm dwelling, modernizing its equipment, is good business. It is an investment that brings profitable returns. The farmer and his family need wholesome relaxation just as much as any persons constantly employed. The home should be the place in which to obtain it.

An attractive dwelling with an inviting approach acts as a magnet on the tired toiler. The sight of flowers and a well-kept lawn is a relief from the drab clods of the plowed field, the brightness of the blossoms a change from the sameness in the color of growing crops. A cheery interior at once dispels care and bright rooms induce rest.

Every dollar judiciously spent for labor-saving devices and for sanitary conveniences is an investment and labor-saving contrivances a necessity in these days of enlightenment. They save wear and tear on the human machine and prolong life.

GIRL MAKES 3,000 GALLONS OF SIRUP.

A home demonstrator who a few years ago was a member of one of the canning clubs under the direction of the Department of Agriculture in conection with the State college now owns and operates an evaporator for the benefit of the farmers of New Kent County, Va. In the past season 3,000 gallons of canned sirup or sorghum have gone from her little plant. She says the turning out of 30 to 40 gallons a day has been easy and pleasant work.

Community Canning Conserves Much Material With Little Help

Community canning kitchens are solving the economic problem faced in many homes of little help, plenty of canning material, and a desire to utilize all food material.

In a community canning kitchen, where apparatus too expensive to be owned by an individual family is to be found, much more work can be done in less time than in an ordinary kitchen. The spirit of comradeship, cooperation, and good-natured rivalry found there also helps to make the work easier and more pleasant than when performed in the isolation of an individual kitchen.

With the indorsement given them by home demonstration agents under the Department of Agriculture, in connection with State agricultural colleges, their number is rapidly increasing in every State in the Union.

In Norfolk County, Mass., eight community canning kitchens have been successfully operating during the past summer. The vital problem of the kitchens was that of the volunteer help. The success of the enterprise depends on the quality of the help which comes to operate the kitchen.

One community kitchen in this county, where the work was done entirely by children, has turned out nearly 6,000 pints during the season. These canning kitchens have been the main enterprises in the respective towns the present fall.

A kitchen in Bristol County, Mass., working five days a week, has been turning out an average of fifteen hundred cans of products weekly. It has an efficient volunteer leader, 2 paid workers, a volunteer bookkeeper, and 10 volunteer workers who come each morning to prepare fruits and vegetables. The different churches in the community have charge of sending the 10 volunteer workers. Automobile owners have offered the use of their machines to bring to and take from the cannery the products of those who have no other way of getting them there. Boy and Girl Scouts have carried messages and orders where there was no telephone connection. The kitchen has had more orders than it could fill all summer. If there had been more space three times the amount of work could have been done.

Tells How Nitrate Diverted from Use on Farms Helped Defeat German Armies

B. M. Baruch, as chairman of the War Industries Board, recently authorized the following:

Facts concerning the importation and use of nitrate during the war period, hitherto suppressed for military reasons, are herewith made public by C. H. MacDowell, director of the Chemicals Division of the War Industries Board, for the purpose of clearing up certain misunderstandings which have existed.

Appropriation by Congress.

In the fall of 1917 the Congress appropriated $10,000,000 to be used by the Agricultural Department in importing nitrate of soda to be sold by them to the farmers at cost. This was later made a revolving fund. Under this the War Industries Board procured for the Department of Agriculture some 109,000 long tons of nitrate for shipment from Chile during the winter and spring. Owing to disturbed shipping conditions in the early spring, it was impossible to bring in for February-March arrival the tonnage expected, and with the needs developed by the expected spring offensive of the Germans, it became necessary to divert to France a large tonnage of nitrate for manufacture of explosives in that country and for further increasing production of explosives in this country for use in France. This immediate need made it impossible for the Department of Agriculture to secure boats sufficient to bring in the full 109,000 tons, so that 66,778 tons was actually imported in time for use by the farmers for spring planting.

Short Tonnage Explained.

Owing to military necessity, publicity could not, of course, be given to the reason of the nonarrival of the nitrate sold to the farmers, and this inability to deliver was the cause of considerable feeling on the part of users of nitrate of soda. The military necessity was the greatest one and the planters who were unable to get the nitrate were in this way contributing to the supply of explosives in France, which later led to the winning of the war.

Drawn from Reserves.

The nitrate of soda situation in the United States up until about the 1st of August was a serious one, although every explosive and chemical plant was kept supplied with sufficient nitrate to maintain full operations at all times. This was done by drawing from Government arsenal reserves and by transferring stocks from fertilizer manufacturers and other holders to plants when stocks were about exhausted. Owing to the shortage of nitrate, it was deemed wise to ask the importer to discontinue sales of nitrate to fertilizer manufacturers other than for the making of sulphuric acid, and after the first of July all consignments of nitrate arriving in the country sold to such manufacturers were commandeered by the Ordnance Department and turned over to munitions and chemical manufacturers. These contracts thus handled were made between the importers and the fertilizer people in the fall of 1917.

All Restrictions Removed.

Immediately on the signing of the armistice, all restrictions were taken off of the importers as far as sales of nitrate to fertilizer manufacturers and agricultural users was concerned, so that there will be no difficulty in supplying the entire needs of the United States for agricultural use for spring planting.

Nitrate of soda is the foundation of smokeless powder and high explosives as well as for other needed chemicals, and the purchase and importation of nitrate to the United States was controlled by the United States Government through the War Industries Board in cooperation with the importers formerly handling this material, the importers buying in Chile as in times past. The Government received their nitrate through the importers at cost and the profit charged by the importers to private users was controlled by the Government so that uniform cost to all users was secured, this cost being based on the average monthly cost in Chile, plus the freight storage, exchange, and other elements of cost.

The Nitrate Committee.

A committee known as the Nitrate Committee of the United States was established with offices in New York and a New York representative of the War Industries Board represented that board in the offices of this committee. Government needs for nitrate were increasing rapidly and the 1919 requirements would have been very large. During the entire period of the war all needed nitrate was secured and there was no let up in the manufacture of war materials depending upon this article.

FARM BUREAU CONDUCTS EXCHANGE

Through its "Buy and For Sale Exchange," the farm bureau of Dekalb County, Mo., carried on a business last year of $14,925.

Three carloads of acid phosphate were sold to the farmers at wholesale price. Two cars of apples and two cars of potatoes also were secured.

PROPER CARE OF SEED CORN IMPORTANT.

Conclusive evidence has been obtained from several lines of work conducted by the United States Department of Agriculture to prove that the productive power of a corn plant is influenced by the treatment received by the kernel from which the plant grew from the time it ripened until it was planted. It has been common knowledge that injury to seed corn would reduce its germinability. These investigations have extended beyond germinability and determined the effects of seed treatment upon productivity independent of germinability.

A good stand may be obtained by the thick planting of poor seed, but with an optimum stand of plants from injured seed such plants are less productive than the same number from uninjured seed. These results follow when the seed is injured by normal weather conditions as well as when injured by subjection to moisture, freezing, and thawing. Mechanical mutilations of kernels similar to the chipping, cracking, and breaking that to some extent take place in shellers and planters reduce the productiveness of the plants that grow from such kernels.

The point of value that has been established is that, independent of heredity and independent of germinability, any injury to dormant seed corn reduces the power of such seed to produce a good crop. Seed corn of 100 per cent germination, laboriously secured from injured seed by individual ear-germination tests, is less productive than seed that matured well and was so cared for as to make individual ear testing unnecessary.

Tests under the same environmental conditions of widely dissimilar varieties have brought out the value in long-season districts of making plantings at different periods and using at least two varieties of different seasonal requirements in order better to meet the exigencies of the season and to insure a crop.

The price of clover seed, received by producers, has more than doubled in two years. In Ohio, an important producing State, farmers were receiving $9.25 a bushel November 15, 1916, $13.30 a year later, and $20.50 in the same month in 1918.

Americans Find Chance to Extend Area of Grain in Algeria; Machinery Needed

Three plant scientists of the United States Department of Agriculture, who visited Algeria at the request of the Governor-General of Algeria, through the French High Commission to the United States, to investigate Algerian agricultural conditions with a view to increasing the grain exporting capacity of that country, have returned to Washington. They report there are possibilities of extending the grain production area in Algeria, of making a great saving in the cost of production, and of establishing a profitable trade in farming machinery between America and Algeria.

The party consisted of E. C. Chilcott, Agricultural ist in charge of Dry-Land Agriculture; T. H. Kearney, Physiologist in charge of Alkali and Drought Resistant Plant Investigations; C. S. Scofield, Agriculturalist in charge of Western Irrigation Agriculture, and R. F. Whelan, clerk, all of the Bureau of Plant Industry. They spent most of September and October in Algeria conferring with the Director and members of the staff of the Department of Agriculture of that country, and in visiting the various grain-producing regions, where conferences were held with farmers and others interested in the problems of grain production and transportation.

Grain-Producing Area Described.

Grain is produced in Algeria chiefly in valleys interspersed among the mountain ranges near the Mediterranean coast and on the high plateaus lying between the coastal mountain region and the less elevated ranges which form the northern border of the Sahara Desert. Much of this country lies at an altitude of 3,000 feet or more, with climatic conditions similar to those of the Great Basin of the United States in Utah, Nevada, Idaho, eastern Oregon, and Washington, although the winters are less severe. The climate is generally semiarid, having a rainfall of less than 20 inches over most of the grain-producing region. This rainfall comes during the winter and early spring months. The French colonists in recent years have extended the area of cereal production into localities where the rainfall is so uncertain that a good crop can be expected only once in five or six years. Comparatively little grain is grown under irrigation.

The more important crops grown are the following, named in the order of their importance: Barley, durum wheat, bread wheat, and oats. All of these crops are sown in the autumn months from October to December, and are harvested from May to July. The annual production of all of these cereals for the country is not far from 75,000,000 bushels, of which about 40 per cent is barley, about 35 per cent is wheat, and 25 per cent is oats. Very little Indian corn and grain sorghums are produced. Owing to exceptionally favorable climatic conditions, and to the large acreage planted under the stimulus of a very high price fixed for wheat by the Algerian Government (equivalent to about $3.10 per bushel) the crop of 1918 was unusually large. The precise figure was not obtainable, but the total was probably well in excess of 100,000,000 bushels. In ordinary seasons some 20 to 25 per cent of the grain crop of Algeria is available for export, and it is shipped chiefly to France.

Similar to American Methods.

Methods of grain production used in Algeria are very similar to those used in Utah, Idaho, and eastern Washington. Owing to the light rainfall, much of the land is cropped only alternate years, a clean fallow being maintained during the summer preceding the sowing of the crop. In more favorable situations it is often customary to produce two or three grain crops in successive years, allowing the land to lie fallow one year in four or one year in five.

Speaking generally, the soils of the grain-growing regions are rather heavy and are very productive when the rainfall is adequate. Some of the lands are underlain by calcareous hardpan, which it is sometimes necessary to break up by an occasional deep plowing in order to secure maximum production. In certain districts the soil is said to be deficient in phosphoric acid and the yield of grain to be much increased by application of acid phosphate.

The agricultural machinery used is largely imported. Most of the plows and many of the harrows come from France. A few American disk harrows have been tried, but they are not so generally used as is the case in the United States. The grain-harvesting machinery is almost exclusively of the American type, both binders and headers being extensively used. The combined harvesting and thrashing machine has not come into general use. The thrashing is chiefly done with English machines, which appear to have a lower capacity than the machines generally used in the United States. Owing to the scarc of fuel in Algeria, many straw-burning steam engines are used for thrashing.

Interest in Tractors.

Much of the grain farming of Algeria is carried on in relatively large units, individual farms of 1,000 to 5,000 acres being not uncommon. Horses and mules are the chief motive power used on the farms, though there is a keen interest in the possibility of using tractors.

The methods used in handling the crop after thrashing can be economically justified only by the abundance and cheapness of unskilled labor prior to the outbreak of the war. The American elevator system is virtually unknown in Algeria, all grain being sacked, and the freight cars being loaded and unloaded by hand. The absence of elevators at the ports of embarkation makes the process of loading ships with grain very slow and very expensive.

The chief difficulties confronted by Algerian grain producers are the shortage of labor, due to war demands in France; the shortage of sacks, of agricultural machinery, and of repair parts, due to interrupted transoceanic shipment; and the shortage of interior railroad transportation, also due to war conditions, which have caused a serious deficiency in personnel, rolling stock, and fuel.

May Extend Production.

Though the area used for grain production in Algeria has been extended very materially within the past 20 years, still further extensions are possible when normal conditions are restored and the pres-

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WEIGHTS OF MILK AND CREAM.

Investigations by the United States Department of Agriculture show that the weights of milk and cream containing various amounts of fat are approximately as follows, at a temperature of 68°:

Skimmed milk of a fat content of .025 per cent weighs 8.63 pounds per gallon, while milk which tests 3 per cent butter fat weighs 8.6 pounds per gallon. Milk which tests 3.5 per cent weighs 8.59 pounds per gallon, while 4 per cent milk weighs 8.58 pounds, 5 per cent milk weighs 8.58 pounds, and 6 per cent milk weighs 8.57 pounds per gallon. Mixed milk and cream of a 10 per cent fat content weighs 8.53 pounds, while a similar mixture of 15 per cent fat content weighs 8.47 pounds per gallon. Twenty per cent cream weighs 8.43 pounds, 25 per cent cream weighs 8.39 pounds, 30 per cent cream weighs 8.35 pounds, 35 per cent cream weighs 8.31 pounds, and 40 per cent cream 8.28 pounds to the gallon. For all practical purposes the weight of milk testing from 3 to 5 per cent butter fat may be figured at 8.6 pounds per gallon.

ent needs as enumerated above can be supplied.

A great saving in the unit cost of production of grain undoubtedly could be made without any essential change in the general farming system now practiced by the best Algerian farmers. This could be accomplished by adopting more efficient methods of hanling farm labor and a more discriminating judgment in selecting farm implements and equipments, such as plows, disk harrows, cultivators, grain drills, thrashing machines, tractors, wagons, and hand tools and appliances. Most of such farm equipment now in use on Algerian farms visited is not well adapted to the use to which it is put, but seems to be a survival of methols and implements that were developed to meet conditions very different from those now existing in the grain-producing regions of Algeria.

Chance for American Trade.

Owing to the similarity of the climatic conditions in Algeria to those of the Great Basin, and of the soil and general economic conditions to those of the Great Plains of the United States, it is believed that American agricultural machinery could be found that would meet the needs of Algerian farmers much better than that which is now nsed by them. It must be borne in mind, however, that owing to the enterprise of American mannfacturers, stimulated by the demand among American farmers for the most efficient labor-saving implements, a very great variety of such implements is now on the market, each special type of which is undoubtedly well adapted to certain conditions of soil, climate, and cropping system, but is not adapted to other conditions. Indiscriminate purchase and shipment from America to Algeria of agricultural machinery, and equally indiscriminate use of such machinery by laborers inexperienced in its use or its adaptation to local conditions would be very nnfortunate. If, however, the Algerian farmers conld become thoroughly acquainted with American farm methods and machinery, and if the manufacturers of American farm machinery, and particnlarly of farm wagons, plows, disk harrows, grain drills, tractors, and thrashing machines, would study the needs of the Algerian farmers and would supply those needs at reasonable prices, a very profitable trade could be established between America and Algeria and Algerian agriculture would be greatly benefited thereby.

Pecan production was very low in 1918, when it fell to only 27 per cent of a full crop. Production was 65 per cent of a full crop in 1917, 44 per cent in 1916, and 71 per cent in 1915.

URGES STRONG DEPARTMENTS OF AGRICULTURE IN STATES

Secretary Houston Promises Aid to Association of Commissioners

Tells Necessity for Effective Cooperation in Enforcing Animal and Plant Disease Regulations of Federal Government

In addressing the National Association of Commissioners of Agriculture at Baltimore January 7, D. F. Houston, Secretary of Agriculture, spoke earnestly in favor of strong State departments of agriculture to cooperate with the Federal Department of Agriculture in regulatory activities concerning animal and plant diseases in the same way that the Federal department now cooperates with the State agricultural colleges in educational and research work.

HARVEST TIME ON THE ICE POND.

"It snows, it snows, and cold the north wind blows.
See how the bare trees quiver! See how the people shiver!
Ah, but the boys are glad, tho all the world is sad."

How the north wind howls around the gables! The old house rocks and the blazing fire on the hearth leaps higher into the blackened throat of the chimney.

Good evenings for popping corn, roasting apples, and toasting shins at the fire. And good days for the ice pond, where comforts for next summer are gradually crystallizing in the form of ice.

Keep your eye on the pond. As soon as the ice is thick enough, get out the ice tools and start the harvest. How the snow creaks under the sled runners! Whoa, Bet! Whoa, Dan! Good, wholesome, outdoor work that makes the blood tingle. Mother and the girls better have plenty of dinner ready. My, but this is good, solid ice! No thaw ice or frozen slush. Pays to cut ice in this kind of weather.

The Secretary related the difficulties that the department has encountered in many of the States due to the lack of well-equipped State departments or other regulatory agencies with sufficient legal powers and funds. He explained also the method of cooperation and joint support between the Federal department and the States under the Smith-Lever Agricultural Extension Act and the Federal aid road act, and contrasted these effective methods of cooperation with the lack of cooperation in respect to regulatory measures. He said:

"Now the matter stands in a different situation. Two great State organizations, your own and the Association of Land-Grant Colleges, have had the matter under advisement and have arrived essentially at a common mind. I am informed that the thoughts of the two bodies is that a great gain would result if the States adopted the policy, in general, of confining the agricultural colleges to investigational and educational work, both in the colleges and in the field, and the commissioners or boards of agriculture to administrative and regulatory matters, heading up under such commissioners or boards all the appropriate administrative and regulatory activities affecting agriculture, thus providing in each State two great, strong, central agencies for the betterment of agriculture and rural life.

Suggests A Model Law.

"This course, it seems to me, wonld be eminently wise. It would remove possibilities of duplication of work, of wasted energies, of jealousy and friction, and make it possible for the two great State establishments to work with a common pnrpose and with united forces. It wonld also very greatly facilitate the work of the Department of Agriculture, much of which must be carried on of necessity in cooperation with State officers. The department would then be in position to cooperate untrammeled with the colleges of agriculture in investigational and educational work and with the State departments of agricultnre in all matters involving regulation, such as quarantines, the control of animal disease, orchard and nursery inspection, seed inspection, feed and fertilizer control, statistical inquiries, and the highly important tasks of aiding the farmer in the promotion of better rural finance and in the distribution and marketing of his products. If this is the plan of the two bodies, I shall be very glad in all appropriate ways to give it such support as I can, and to aid in securing its acceptance in any State where action may be needed. I know that there will be difficulties and that the problem will have to be dealt with in each State in the light of local conditions. It may be that no given plan wonld be feasible for every State; but I take the liberty of suggesting, for your consideration, the desirability of developing and presenting a tentative model law."

Compared with the average of the fiscal years ending June 30, 1909–13, the exports of feeding stuffs from the United States in the fiscal year 1918 greatly increased in oats and barley, but declined in corn and greatly declined in cornoil-cake, cottonseed and linseed oil-cake and meal, rice bran and polish, dried grains, and malt sprouts, and hay.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Community Poultry Raising Encouraged.

The formation of community poultry-breeding associations is being encouraged by the Bureau of Animal Industry of the United States Department of Agriculture as a part of its effort to assist in improving flocks and making poultry raising more attractive. Prominent among the advantages of community interest in better poultry are concentration of effort on one variety, opportunities for collective marketing, economy in buying and selling breeding stock, and increased skill in poultry management. Already 48 poultry-breeding associations have been formed. In Virginia a Barred Plymouth Rock association has developed a cooperative selling plan of a size that requires a manager to handle the business. Organizations of this kind are not only beneficial to the members, but by stimulating a larger output of high-quality poultry products they benefit the public as well.

Substituting High Bred for Hybrid.

In a campaign to retire scrub bulls from the herds of the State, seven Wisconsin counties have made plans to follow the example of Fond du Lac County, which in one month placed 43 pure-bred sires on farms, 38 going to herds that never before had had pure-bred sires. The drive against scrub sires was started at the December conference of Wisconsin county agents, and is in charge of a "steering committee" representing the extension service, the State college of agriculture, leading stockmen, and officials of farmers' organizations. Breeders believe that the elimination of the scrub and grade sire will greatly improve their markets, and appreciate that out-of-State buyers visiting Wisconsin for dairy cows insist on stock sired by pure-bred bulls.

Fighting Disease of Barley.

Wisconsin county agents have been warned that the barley stripe disease is more widespread and destructive than has been supposed—the loss in some fields being more than half the plants. They have been asked to give instructions in killing the stripe by soaking the seed grain in formaldehyde for two hours. This treatment also kills the covered smut and most of the loose smut. Where farmers feel that they have not the time to treat all of their barley by the two-hour method, the agents are suggesting the use of a seed plot where the clean mother seed would be grown for the succeeding crop. Machine treatment, they are told, will kill the covered smut, reduce the stripe a little, but will not destroy the loose smut. The campaign in Wisconsin will be carried on through seeding time. Wisconsin's barley yield was reduced by the disease this year, it is believed, by more than a million bushels, enough to make 150,000 barrels of flour.

Self-Feeder for Hogs Pays.

The Jefferson County (Ind.) farm bureau, through the county agent, has just completed a profitable self-feeder demonstration for hogs. Ten pigs from one litter were fed skimmed milk and allowed to eat at will from a self-feeder containing bran, shipstuff, and hominy meal. The pigs were farrowed March 1 and sold on October 22. They made an average daily gain, from date of birth, of 0.93 pound. The total cost of feed was $200. The weight of the hogs at selling time was 2,160 pounds, or an average of 216 pounds each. The farmer received $18.50 a hundred, $399.60 for the lot, making a net profit of $199.60, or $19.96 per head.

Lime Value Shown in New York.

Fields treated with lime produced an average of 1½ tons of cured hay an acre more than unlimed fields in tests of ground limestone, burned lime, and hydrated lime, conducted by the farm bureau through the county agent in Chemung County, N. Y. A farmer who used 1 ton of ground limestone to the acre secured 4,840 pounds of cured hay, compared to 1,208 pounds on an unlimed acre. Another, who applied 700 pounds of hydrated lime to an acre, obtained 6,292 pounds against 1,461 pounds on an unlimed acre. A third farmer used 1 ton of burned lime to the acre and obtained 2,400 pounds, compared to 1,040 pounds on unlimed land.

Wyoming Calls Halt to Work of Rodents.

Lincoln County, Wyo., this year saved $100,000 worth of grass and grain, it is estimated, as the result of a campaign against rodent pests carried on through the cooperation of the Farm Bureau and the Biological Survey of the United States Department of Agriculture. The damage done by rodents in this county has been particularly heavy, fully 25 per cent of the feed on the range being destroyed each year. Two of the four farming sections of the county were organized for the work with 50 per cent of the farmers and ranchers cooperating. As a result, 85 per cent of the squirrels on the land treated with poisoned bait were killed. The results were so striking that practically every farmer in these two sections is expected to cooperate next spring. The other two farming sections have recently been organized, so that next year all the farming districts of the county will be waging war on the rodents. Similar campaigns were conducted in four other Wyoming counties during 1918.

Save by Cooperative Buying.

Farmers of Dukes and Nantucket Islands, lying off the Massachusetts coast, saved more than $150 on each of four 20-ton cars of feed purchased cooperatively. The islands, each of which constitutes a separate county and has a farm bureau cooperating with the Massachusetts Agricultural College and the United States Department of Agriculture, use about three cars of feed a month. The county agent, who covers both counties, called attention to the advantage of cooperative buying, and the farm bureau officers arranged with local bank officials for the purchase of feed in car lots. The farmers deposit their orders at the bank on the first of every month. When orders aggregating a carload have been deposited the bank buys the feed, pays for it upon arrival, and notifies the farmers when it is ready for delivery. Each farmer makes terms with the bank, either paying cash or giving his note bearing 6 per cent interest, and is given an approval slip. Upon presentation of this slip the attendant at the car delivers the grain.

Introduces Pedigreed Seed.

The farm bureau of St. Claire County, Mich., has to its credit an accomplishment which will mean much to the future of the county. Due to an unfavorable season the wheat crop was practically a failure, and the growers were obliged to obtain seed from an outside source. In the natural course of events the eleva-

fors would have shipped in seed, some from one point, some from another, and the result would have been several kinds of wheat and none of it pure. At a meeting of the executive committee of the farm bureau the county agent was instructed to take orders for Red Rock, a superior variety of pedigreed wheat. Orders for 1,600 bushels came in promptly, and the agent went to St. Joseph County, in the western part of the State, and through the assistance of the farm bureau of that county, easily obtained a carload of wheat that had passed a rigid inspection, both in the field and after thrashing. By buying in carload lots through their organization the farmers of St. Claire County saved 30 cents a bushel, but a still more important feature of the method was that they obtained a high grade of seed, thus preparing the way for producing a standard variety of grain.

Investigate Quality of Seed.

Nearly 17,000 samples of seed were received for test last year at the seed-testing laboratory of the United States Department of Agriculture in Washington, and 11,349 samples at the five branch laboratories maintained in cooperation with State institutions. All of these samples were examined to determine the quality of the seed and the presence of adulterants. The enforcement of the seed-importation act has served to prevent many shipments of imported seed, unfit for seeding purposes, from being distributed in their original condition. Among these shipments over 675,000 pounds of red clover seed were prohibited entry on account of the presence of weed seeds and dead seed. Approximately one half of this was recleaned in bond—the weed seeds and other refuse removed being destroyed, while the seed of good quality was allowed to go into the seed trade. The other half of the prohibited red clover shipments was rejected because it contained so much dead seed as to be of practically no value for seeding purposes. Three shipments, aggregating enough seed to sow 16,000 acres at a normal rate of seeding, contained no seed which could be expected to grow in the field. Because of the difficulties of trans-Atlantic shipment, imports of almost all kinds of seed have fallen off, Canada bluegrass from Canada and winter rape from Japan being the only two items of imports which have exceeded those of the previous year.

Make Money by Live-Stock Auctions.

Live-stock auction sales were held this year by the Kern County (Cal.) farm bureau. This idea was worth $130,000 to some California farmers in 1918. When Kern County secured the services as county agent of George S. Kreutzer, of Australia, he told how the farmers in every community in that country on certain days brought their live stock to a central market place, where it was gathered in carload lots of like quality and sold at auction. The Kern County farm bureau held a sale on the Australian plan and afterwards formed an auction-sales department. The farm bureau centers on certain designated days brought in their live stock for sale at local railroad stations. The county agent notified the packing companies of the dates and places of the sales and asked them to send representatives. A committee, appointed from the farm bureau, weighed and graded the stock, making it possible for the buyers to bid on carload lots of uniform guaranteed quality. The farm bureau hired the auctioneer, put in suitable stock scales, and built the necessary pens. Payments for stock sold were made in cash to the farm bureau, which deducted 1 per cent to cover expenses. The farmers secured from 1 to 3 cents a pound more by selling in the farm-bureau auction sales than by any other means.

Farm Bureau Organizes Work.

The first completely organized means in Hamilton County, Ohio, for securing local cooperation in setting improved agricultural practices at work was the farm bureau. It has a total membership of 1,000. Through the county agent this farm bureau has stimulated the use of 2,500 tons of home-ground limestone, introduced four portable lime pulverizers, started a community tiling project that will increase production on many a loafer acre, and has saved the county $2,000 worth of wheat by cooperating with the threshermen and farmers in placing canvas under the thrashing machines.

To Reduce Milk-Production Costs.

Following a study of practical means to prevent the cost of milk production from rising to a point where dairying ceases to be profitable, the Dairy Division of the United States Department of Agriculture has found that four important factors have a direct bearing on the problem. By attention to these factors, all of which are within the control of producers, it was found that under Indiana conditions, which are typical of the area supplying whole milk to Chicago, the cost of production could be reduced considerably. The factors are raising the average production per cow, reducing the quantity of concentrated feed given low-producing cows, substituting legume roughage for a part of the concentrates, and more careful handling of the manure. The importance of handling manure properly is secondary in importance only to feed from the standpoint of net profits.

Cutting Milk-Delivery Costs.

Investigating the system of handling dairy products in Hampton County, Mass., the farm bureau found it uneconomical because of the time consumed in the delivery of milk. The assistance of the Bureau of Markets of the United States Department of Agriculture was secured and a survey was made. It was learned in the town of Westfield, where 13 dealers travel 190 miles to deliver 4,630 quarts of milk, that the establishment of a central milk plant would save to the dairying of that community more than $30,000 annually. A similar survey was conducted in the town of Springfield, and plans are being developed for the erection of cooperative milk plants in both towns.

Better Fruit by Bud Selection.

Two experimental lemon groves were established in the past year by the United States Department of Agriculture in California, where special attention will be given to the development of better fruit-growing strains through bud selection. One of the plantings is located near Corona and consists of 11½ acres; the other is at the citrus experiment station of the University of California and consists of five acres. Both of these experimental orchards were planted with progeny trees propagated from selected parent trees having the best production records. For comparison with trees so propagated other trees that were propagated from parent trees having inferior performance records have been planted. The plan is to keep accurate records of all trees for a series of years after they come into bearing. From a commercial standpoint the bud-selection work conducted by the United States Department of Agriculture has made great progress in California. As a result, the California Fruit Growers' Exchange established a bud-selection department, the object being to supply to growers and nurserymen reliable buds of superior strains of citrus varieties grown in California.

Poultry Studies Wide in Scope.

In its efforts to encourage the broad development of poultry raising in the United States, the Bureau of Animal Industry of the United States Department of Agriculture is conducting investigations to establish the best methods of raising many varieties of fowls. The present scope of the work includes not only the feeding, breeding, and care of ordinary poultry, but also the raising of pigeons, squabs, guineas, turkeys, and

many other birds, including ostriches. The flesh of squabs, turkeys, guineas, geese, and ducks makes a pleasing variety in the diet, and with wild fowls now becoming less available, it is important that a sufficient number of domestic birds be raised to keep the market constantly supplied. The problem now is chiefly one of farm production, which requires expert knowledge if adequate supplies are to be continued.

Farmers Warned Against False Claims Made for Edible Gourds

Department of Agriculture officials again warn farmers and gardeners not to be fooled by extravagant claims in advertisements of two varieties of edible gourds, long known but little grown in this country, which are treated in the advertisements as "butter beans" of rare quality and high productivity. Vague but glowing and extravagant claims are made for them.

The food value of these gourds is similar to that of summer squash, according to department officials, and they are interesting as curiosities, but have slight practical worth.

The name, Gigantic New Guinea Butter Bean, has been loaded onto the Cucutza or sweet gourd. It is frequently found in Italian vegetable gardens and is offered in the markets of New Orleans, but is considered of such little value that seedsmen rarely give it notice. It has been reported to the department that this so-called new bean has been offered at extravagant prices, for example, 6 of the gourd seeds for 50 cents, or 16 for $1.

The Snake or Solomon Island Gourd also has been renamed in certain advertisements as Guada Bean. This gourd can be grown only in warm climates and is adapted to rather limited regions in the southern part of the United States.

HIGH BUSHEL WEIGHTS IN 1918.

Investigation by the Bureau of Crop Estimates indicates an average weight of 58.8 pounds per bushel for the wheat crop of this country in 1918. The average for 1917 was 58.5 pounds, and the 10-year average ending with 1917 was 58.1 pounds. The oats crop of the United States in 1918 had an average weight of 33.2 pounds per bushel and for the preceding 10 years 32 pounds. An average weight of 46.9 pounds per bushel is reported for the 1918 barley crop, compared to 46.4 pounds for the previous eight crops.

STICKING-TO-IT SPIRIT WINS CONVERTS TO AGENTS' WORK

Prejudice and Preconceived Opinion Vanquished By Results

Instances of How Obstacles Were Surmounted; Farmer Becomes Enthusiast After Son Shows Him How to Select Seed Corn

In boys' and girls' club work prejudice and preconceived opinion, founded on lack of knowledge or misrepresentation, are two obstacles that county agents and demonstrators meet every day. To surmount them is not the easiest task; to convert opposition into hearty support is an achievement calling for unusual patience and tact. That both of these virtues are possessed in large measure by a majority of the extension workers may be adduced from the reports constantly coming to that bureau.

PREPARE FOR ICE HARVEST.

It is time to make final preparations for cutting ice. Get out the ice tools—the saws, tongs, and iron bar. Look them over carefully and see that they are in tiptop condition. Sharpen the saws and see that the handles are all right. Repoint the tongs and bar, if they need it. Clean them up and be all ready to make the ice slivers fly when the ice is thick.

Did you ever try cooperation in ice harvesting? It works like a charm. Get one or two of your neighbors to go into such a scheme. One pond or stream and one set of tools will answer for all. Its just like a midwinter picnic, for "many hands make light work."

Better make sure, also, that you have on hand plenty of dry, clean sawdust or whatever insulating material you are going to use. Wet sawdust is a poor insulator and wastes ice. How about it; is everything ready?

A farmer in Maryland had no use for "book farming." He upbraided his son, a member of a boys' club, for following the agent's instructions in seed-corn selection. He called the test for 100 per cent germination "foolishness," and walked off in utter disgust. The boy, encouraged by his instructor, kept at it, demonstrated the proposition, grew the selected seed, and got a typical high-grade crop, a decided contrast to dad's. That settled it. The "foolishness" turned out to be "a good idea." The farmer has become an enthusiast.

How Biscuits Conquered.

At the very outset a woman demonstrator in a northern county of Texas was opposed by the parents of a bright village girl, anxious to become a member of a boys' and girls' club. The mother was not a believer in "these new-fangled ideas" and the father had no sympathy with any "crazy theory stuff." In spite of the absence of any form of invitation, the demonstrator spent the night. Before the family awoke in the morning she went into the kitchen, made biscuits according to the "new-fangled idea," helped in the preparation of the breakfast and—well, the biscuits conquered.

To-day that little girl is the leading member of a club. During the past season her garden was such a success that she will have a bigger one next year, and the cooperation of her parents. And, according to them, any time that agent comes this way she'll find "welcome on the door."

Agent Now Welcomed.

One more instance, the three covering some of the important phases of agent work in the South: The colored farmers of a certain county in a far southern State used to pay no attention to crop rotation or diversification. They grew the same crops in the same fields, and only such produce as suited their particular whim. Nor did they see any necessity for home sanitation. They didn't know anything about the necessity for either and cared less. As for the county agent, he was an intruder. They have different ideas to-day. Not only do they grow the right crops, but also they take pride in the appearance of their fields and buildings. There is a friendly rivalry among them now and the one-time intruding agent is besought to set them right in all their problems.

Thus opposition can be overcome by demonstration, and is being overcome today more than ever through the proper approach, the stick-at-it attitude, and the tact of the county and field agents and demonstrators of the extension service.

GUINEA PIGS ARE INBRED TO EIGHTEENTH GENERATION AT GOVERNMENT FARM

Breeding facts valuable to live-stock raisers are being collected by the Bureau of Animal Industry through experiments on its farm at Beltsville, Md. Experiments on the effects of inbreeding in guinea pigs, begun in 1906, already have been carried to the eighteenth generation wholly by mating brother and sister. Inbreeding is a practice frequently used by live-stock raisers in their efforts to fix and render prepotent desirable family traits. With the practical results hoped for, however, certain disadvantages, for-

merly difficult to explain, sometimes appeared.

Present progress of the Government inbreeding investigations with guinea pigs has developed the following points of interest:

The mere fact that the closest inbreeding can be carried to the eighteenth generation without any very obvious degeneration is noteworthy.

There has been, however, some decline in vitality, size, and, especially, fertility.

The young produced by crossing different inbred families show distinct improvement in all respects.

The inbreeding has brought to light, and automatically fixed in 23 inbred families, pronounced differences in fertility, size, vitality, color, and pattern.

There is independent heredity of these traits, with no correlation between the vigor of a family in one respect and its vigor in others.

The chief effect of inbreeding, as indicated by the experiments, is the fixation of hereditary factors. The decline in vigor on inbreeding and the improvement on crossing appear to be merely very likely, but inevitable, consequences. If breeders use great care in the selection of breeding stock, there appears to be no cause which prevents a satisfactory degree of vigor from being combined with the uniformity and prepotency which can only be obtained through close breeding.

EXPERIMENT STATIONS DEVELOPING PROFITABLE FOOD CROPS IN ALASKA

Many Americans think of Alaska as a land of perpetual snow, comparable with "Greenlands' icy mountains," and from an agricultural standpoint of little value. But the United States Department of Agriculture is demonstrating, through the agricultural experiment stations in Alaska, that many crops can be successfully and profitably grown in the Territory.

Hardy hybrid strawberries, developed at the Sitka, Alaska, agricultural experiment station, can be grown successfully and made to bear fruit where the growing season is short. Several thousand plants resulting from crosses are now under observation at the station. At the experiment station at Fairbanks last year, in spite of unfavorable weather conditions—a cold spring followed by severe drought—more than 1,200 bushels of spring wheat, oats, and barley were produced. Average yields of over 12 bushels an acre were obtained for spring wheat, the seed for which was obtained in 1914 from a Siberian experiment station. Other varieties yielded from 12 to 15 bushels an acre, and yields of from 38 to 54 bushels of oats an acre are reported. Most of these grains were from pedigree strains developed from the Rampart Station.

In an attempt to grow leguminous plants for forage or green manure, it has been found at the Fairbanks Station that red clover, which winter kills badly, can be grown successfully as an annual crop when seeded early in May.

Potatoes are the principal money crop of the Tanana Valley. Yields of 92 to 162 bushels an acre were produced at the experiment station.

The stations at Fairbanks and Rampart are giving special attention to the production of improved seed for Alaskan use. In addition to grains, seed of peas, turnips, and other crops were grown in considerable quantity for 1918 planting.

SHOWS COLD-STORAGE SPACE AVAILABLE.

Cold-storage space unoccupied and not contracted for on December 1, as reported to the Bureau of Markets, was 1,748,795 cubic feet, of which 461,976 was sharp freezer space and the rest ordinary freezer space. Of the total space reported, 311,089 cubic feet was space that could be used for storage of frozen fish.

The sharp freezer space is largely in Massachusetts and New York, the remainder being in California, Michigan, and Pennsylvania. The ordinary freezer space is chiefly in California, Massachusetts, and New York, lesser storage capacity being in Colorado, Kentucky, Nebraska, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, and Texas. Space available for the storage of fish is reported in Los Angeles, Louisville, Baltimore, Boston, Albany, Brooklyn, New York, and Salt Lake City.

The Bureau of Markets will furnish the trade, on request, the names and location of warehouses reporting space available on December 1. It is likely that additional space will be reported, as replies have not yet been received to all inquiries sent warehouses.

POISONED BAITS FOR CUTWORMS.

Experimental work with sawdust as a substitute for bran in poisoned baits for cutworms has demonstrated the practicability of cheapening the mixture by the use of this material. In addition to several outbreaks of cutworms in some of the middle western and southwestern States in 1917, a notable outbreak of the granulated cutworm occurred in one of the irrigated sections of southern Arizona, where alfalfa is the staple forage crop. This outbreak was successfully treated by means of the poisoned baits, described in Farmers' Bulletin 739.

CATTLE DEHORNING METHODS DEMONSTRATED FOR FARMERS

Specialists Show Use of Clippers, Saw, Caustic Soda, and Caustic Potash

Age of Animals Governs Choice of Way—Chutes for Holding Cattle During Operation Are Recommended

THE WHY OF DEHORNING

Dehorning makes an animal more easily handled.
It renders the animal less dangerous to attendants.
It prevents the goring of other cattle in the feed lot or in transit to market.
It adds uniformity to the appearance of cattle and thereby adds to their value.

Methods of dehorning cattle have been the subject of unusually interesting demonstrations held by cattle specialists of the United States Department of Agriculture, cooperating with other extension forces. The demonstrators showed how to remove horns with clippers and saws, and the use of caustic soda and caustic potash to prevent the growth of horns on calves.

Dehorning Chutes Best.

Dehorning chutes, for holding cattle while being dehorned, were also constructed by the demonstrators, who emphasized the importance of using them instead of resorting to such practices as throwing the animals with ropes, tying them to fences, or similar unsatisfactory methods. In a number of cases farmers were permitted to dehorn one or two animals to become familiar with the operation.

The method of dehorning depends in each case upon the age of the cattle, specialists of the department say. Demonstrations with young calves showed how the growth of horns can be prevented by properly applying caustic soda or caustic potash. Older calves and other cattle were dehorned either with the saw or clippers.

Saw Not So Injurious.

While clippers remove the horn more quickly and with less pain to the animal, the saw has the advantage of not crushing the horn, especially in the case of old animals whose horns are hard and brittle. Neither does the saw cause as much bleeding, since by lacerating the blood vessels it causes a clot of blood to form quickly.

Army Announces Sale Dates of 44,455 Horses and Mules

According to an announcement by the War Department from the office of the director of purchase and storage, the remount division will hold sales of surplus Army horses and mules on January 21 and 28. At these sales and preceding ones 44,455 animals were to be offered. This number included 8,937 cavalry horses, 12,699 artillery horses, 16,526 draft mules, and 2,793 pack mules, as well as 3,500 animals to be sold during January by the Western Department.

Sale Dates and Camps.

The sales on January 7 were held at the following camps: Devens, Mass.; Dix, N. J.; Meade, Md.; Greene, N. C.; Hancock, Ga.; Johnston, Fla.; Gordon, Ga.; Shelby, Miss.; Pike, Ark.; Logan, Tex.; Bowie, Tex.; Cody, N. Mex.; Taylor, Ky.; Grant, Ill.; Funston, Kans.

The sales on January 14 were held at the following camps and remount depots: Devens, Mass.; Upton, N. Y.; Newport News, Va.; Wadsworth, S. C.; Charleston, S. C.; Wheeler, Ga.; Beauregard, La.; Pike, Ark.; MacArthur, Tex.; Doniphan, Okla.; Fort Bliss, Tex.; Sherman, Ohio; Custer, Mich.; Dodge, Iowa.

Sales on January 21 will be held at the following camps and remount depots: Devens, Mass.; Dix, N. J.; Lee, Va.; Sevier, S. C.; Jackson, S. C.; Johnston, Fla.; McClellan, Ala.; Shelby, Miss.; Pike, Ark.; Travis, Tex.; Bowie, Tex.; Cody, N. Mex.; Taylor, Ky.; Grant, Ill.; Funston, Kans.

Sales on January 28 will be held at the following camps and remount depots: Devens, Mass.; Upton, N. Y.; Meade, Md.; Greene, N. C.; Hancock, Ga.; Fort Sheridan, Ill.; Beauregard, La.; Pike, Ark.; Logan, Tex.; Doniphan, Okla.; Fort Bliss, Tex.; Sherman, Ohio; Custer, Mich.; Dodge, Iowa.

Sales in the Western Department will be held during January.

Total Animals at Each Camp.

The toal number of animals to be sold at each of the camps, forts, and remount depots will be as follows: Devens, 2,600; Meade, 1,300; Greene, 1,050; Charleston, 530; Gordon, 566; Fort Sheridan, 1,121; Pike, 2,400; Travis, 1,000; Cody, 1,300; Sherman, 1,488; Funston, 1,514; Dix, 1,100; Newport News, 1,250; Wadsworth, 675; Jackson, 1,023; Wheeler, 1,200; Shelby, 2,214; Logan, 1,518; Bowie, 1,500; Fort Bliss, 1,200; Grant, 1,050; Dodge, 1,296; Sevier, 957; Upton, 1,100; Lee, 600; Hancock, 1,280; Johnston, 1,000; McClellan, 1,025; Beauregard, 1,500; MacArthur, 785; Doniphan, 1,200; Taylor, 1,484; Custer, 1,128; Western Department, 3,500.

HOW 1918 CROP CONDITIONS VARIED.

The composite condition of all crops reached 102.9 per cent of a normal production June 1, 1918, a higher point than was reached at that date during the preceding seven years, but continuous declines followed to 94.1 per cent for September 1, after which date there was improvement to 97.6 per cent for November 1, and this composite condition was exceeded in five of the preceding eight years.

AMERICANIZATION INFLUENCE SHOWN.

An unforeseen by-product of home-demonstration work, especially in cities, has been its influence as an aid in the Americanization of people of foreign birth or extraction. In many instances it was the home-demonstration agent in her food-conservation work who gave the foreign woman the first understanding of the war and her duty as an American citizen.

Mallards Best for Wild Duck Farms; Add to Supply of Game

Raising mallard ducks is an industry which should be developed as extensively as possible in order to supplement the decreasing natural supply of game, according to a bulletin recently published by the United States Department of Agriculture. The ease with which the mallard can be bred makes it the best species for wild-duck farming, and its beauty, popularity, hardiness, adaptability, and fecundity fit it as no other duck is fitted to be the game duck of the future.

Only one-tenth of the food of mallard ducks is derived from the animal kingdom and about nine-tenths from the vegetable, according to the bulletin, which is a report of a study of the natural food habits of this valu ble game bird. The study was made to assist those who are propagating mallards in a semidomesticated condition, to provide proper feed for them, and to enable the improvement of bodies of water and marshes as feeding grounds for wild ducks. It was found that they feed mostly on the sedges, water grass, smartweeds, pondweeds, duckweeds, coontail, and other semiaquatic plants. In the stomach of one mallard was found 102,400 seeds of primrose willow. They also feed somewhat on water beetles, bugs, and dragonflies.

The bulletin No. 720 also discusses the food habits of the dusky or black duck and the southern black duck, which are closely related to the mallard, though not as important.

ROAD PROBLEMS DISCUSSED.

The first essential feature of an improved road is adequate drainage, and another prime requirement, wherever a hard surface road is to be constructed, is a firm foundation. These facts are emphasized in Bulletin 724, "Drainage Methods and Foundation for County Roads," just issued as a professional paper by the Bureau of Public Roads, United States Department of Agriculture. The purpose of the bulletin is to supply information concerning the proper methods of draining roadbeds constructed of various kinds of soil and under different topographical conditions, and also to explain how foundations may be designed to suit the soil conditions, the road surface, and the system of drainage. Some of the topics treated in the bulletin are primary soils, drainage, design of surface drainage, gutters, drop inlets and catch basins, subdrainage, foundations, and specifications.

LADYBIRD IS ENEMY OF FLUTED SCALE.

Cooperating with the city of New Orleans and the State of Louisiana the Bureau of Entomology, United States Department of Agriculture, completed during the year the control of the fluted scale in New Orleans and neighboring places. This was accomplished by the propagation and liberation of thousands of the natural enemy of this scale insect, the Australian ladybird. More than 300 colonies of the ladybirds were liberated over an area of 40 square miles. The distribution also was extended to the known outlying infestations of the fluted scale in Louisiana, Mississippi, and Texas.

Reports from various Mexican States indicate that agricultural conditions are better than for many years. The wheat yield of 1918 is said to exceed that of any previous year, the corn crop to be a record one, and the yield of chick peas to be greater than for many years.

Hog Cholera Losses Steadily Falling; Secretary Urges Cooperation by States

Losses from hog cholera declined greatly in the four years 1914 to 1917 and a further reduction is expected for 1918, says a letter from the Secretary of Agriculture to Addison T. Smith, a Member of the House of Representatives.

The Secretary calls attention to the necessity for State cooperation in the Federal Government's campaign against this destructive animal disease.

How Losses Decrease.

The losses for 1914 totaled 6,304,300 animals, which, valued at $10.40 a head, made a monetary loss of $67,697,461; for 1917, 2,952,144 animals, valued at $11.73 a head, a monetary loss of $32,475,190. During the four years the number of animals taken by the disease was 18,835,901, representing a value of $188,448,643.

"Estimates obtained from State authorities during November, and reports from our inspectors in charge of hog cholera control work," says the Secretary, "indicate that there will be a further reduction of losses from the disease during the present year (1918) except in New York, Pennsylvania, and Washington, where no cooperative work is being conducted by the department. The monetary loss, however, will still be great owing to the increased value of this class of farm animals over that of previous years.

Cooperation Furthers Work.

"A recent article, in which conditions in Iowa are discussed, indicates that the number of hogs lost in that State from cholera in 1914 was approximately 3,000,000, while the losses for 1917 amounted to less than 200,000. Conditions in Iowa, however, have been more favorable to the efforts of the cooperative forces engaged in hog cholera control work in that State during the last two years than previously.

"The reduction of losses has been less in certain other States due largely to circumstances which have handicapped our efforts in controlling the disease. We can not hope to be so successful in States where hogs have access to open ranges as in localities where herds are restricted to the premises of the owner and kept away from sources of contamination."

STRONG WORLD DEMAND FOR FOOD AND FIBER FORCASTED

(*Continued from page 1.*)

pounds) compared with 46,153,000 quintals in 1914.

Live Stock.

Great Britain has maintained her herds of cattle and has increased her sheep and made small losses in hogs. All cattle in 1914 numbered 12,184,505, and in 1917, 12,382,236; hogs declined something more than 900,000. Horses in 1914 were 2,237,783, and in 1917, 2,190,318. Complete figures for 1918 were not available, but so far as ascertained they did not indicate material variation from the figures of 1917.

"Sheep were declining in Great Britain before the war for the same reasons as existed in the United States. They have increased in numbers since the beginning of the war on account of the increase in the prices of wool and meat."—Rommel.

In France all live stock has declined. The comparative figures on December 31, 1913, and on June 30, 1917, are as follows:

	1913.	1917.
Cattle	14, 787, 710	12, 443, 304
Sheep	16, 131, 390	10, 586, 594
Hogs	7, 035, 850	4, 200, 280
Horses	3, 231, 000	2, 283, 000

However, France has maintained her young cattle. Her "breeders" over 1 year in 1913 numbered 2,853,650, and under 1 year 2,112,440. The same classes in 1917 were 2,677,870 and 2,016,860. The decline in sheep is most serious, while there is a sharp decline in hogs.

"Sufficient supplies of breeding stock will probably remain in any event to permit fairly rapid replacement after the war."—Rommel.

Italy's cattle have declined from 7,100,000 in 1914 to 6,155,419 in 1918, but her calves have increased from 1,600,000 in 1914 to 1,801,808 in 1918.

"Many orders have been in effect for the purpose of conserving live stock. For example, in some sections calves weighing less than 440 pounds could not be slaughtered. In other sections the minimum limit was 120 pounds."—Pearson.

Similar restrictions were applied to the slaughtering of sheep and hogs. Italy's present estimated needs are 1,000,000 cows and 500,000 oxen. Sheep have slightly increased since 1908 and are now about 11,000,000, substantially the same as in 1914. Hogs have been greatly decreased.

Generally speaking, Great Britain, France, and Italy will need to import for some time to come large supplies of meats, fats, dairy products, and concentrates for animals. Some importations of live stock for breeding purposes may be made, but for the most part importations will consist of live-stock products. In France and Italy the preservation of young animals gives promise of comparatively early restoration of both dairy and beef herds, and the general thought of producers there is that their present basis stock is the best adapted for their purposes.

Seeds.

At the time of the commission's observations the seed situation for 1919 appeared to be very acute, both as to supply and effective distribution. This situation perhaps will be intensified as to supply by the demands of the devastated regions which are now released for normal activities, but distribution will perhaps be considered improved.

"Unless through prompt international action the approximate stocks and requirements of the vitally important seeds for each country can be determined as a basis for the administration of the existing export restricting regulations in force in the several countries with respect to seeds, the prospect for prompt restoration of normal production in several of the countries will be seriously impaired. The existing conditions tend to favor the forcing of seed prices to destructive high points and thus to endanger the welfare of our own farmers as well as thousands of the allied countries."—Taylor.

One of the distinctive agricultural advances made by Great Britain was the "Testing of seeds order" under which sellers of agricultural seeds are required to declare the purity and germination of seeds offered for sale.

"The law is applicable to farmers who sell seed, except that farmers may sell seeds as "grown" to merchants without having a test made, in such case merely stating the name of the variety."—Taylor.

The act met with the hearty cooperation of the British seed trade.

Needs.

In addition to the live-stock products already mentioned, Great Britain, France, Italy, and Belgium will need to import for some time to come large supplies of wheat, fertilizers, fibers (wool and cotton), and farm machinery. All countries under review have made marked progress in the utilization of farm machinery, especially in the use of tractors. War practices in agriculture have interfered to a considerable degree with established methods of crop rotation and soil building. While these observations were made during active war and looked forward to a continuation of war through 1919, they apply in large part to the farming operations of the spring and summer of 1919 for the reason that demobilization, the

restoration of transportation, and the return to normal conditions can not be immediately effected.

Suggestions and Recommendations.

As stated in the report of Chairman Thompson, the commission as a whole presents suggestions and recommendations concerning the situation as it existed at the time the observations were made. Since then the armistice has been signed and the peace conference has been called. The suggestions and recommendations, apart from the problems which now fall within the exclusive jurisdiction of the peace conference, are as follows:

The commission, basing its opinion on such observation as it was able to make and upon such sources of information as were available, affirms the belief that crop conditions and prospects in the principal countries of the world justify the statement that for the staple food and fiber products grown in the United States, such as wheat, meat, sugar, cotton, and wool, there will prevail a strong demand, and that prices will probably continue steady and at a high level.

Peace Before 1919 Harvest Assumed.

This belief assumes a reasonable provision for shipping facilities and a cooperative effort on the part of the allied governments to organize for production and distribution of staple foods, feeds, and fibers. It is also assumed that the war will end before the harvest of 1919 shall be gathered. The continuance of the war beyond that time would project problems into 1920 and 1921 that can not now be forecast or closely estimated. It is also important to bear in mind that the conditions in Russia, Roumania, Germany, and other wheat-producing countries are so unknown and so uncertain that no prediction can be made as to the influence of these countries on production and markets. One thing seems assured. All these countries involved in war will at once become increased consumers when governmental restrictions upon food are relaxed. The general situation, viewed from the standpoint of the American farmer, would appear for a reasonable period to be both promising and hopeful.

In the consideration of the varied crop-production problems the commission has been impressed with the extent to which the associated governments of Great Britain and her colonies, France, Italy, and the United States, have found it necessary as a war measure to formulate and put into effect fairly definite programs for the production of essential crops, especially wheat.

In the wheat-production program of the United States for 1918, and in that for 1919, it has been necessary to take into account the forecast needs of the allied countries in order to insure the food supply required for the winning of the war. From all information available it is our opinion that the disorganization of industry, including agriculture, in the principal wheat-producing countries of Europe, is so great that several years must elapse before normal production conditions are restored.

World Program Suggested.

As soon as hostilities cease there will be a disposition on the part of many American farmers to resume their usual crop systems which have proved profitable, but have been abandoned or modified at a serious disadvantage in order to assist in the emergency of the wheat shortage. A large portion of these farmers will probably feel that special efforts on their part are no longer needed. It appears important, therefore, that the United States, as a matter of international good will, should take the initiative in requesting the nations now associated as belligerents with the United States to join in a program of agricultural production that shall embrace the needs of the entire world for the next few years lest a possible serious shortage of food, feed, and fiber supplies should dissipate, if not destroy, much of the precious fruit hoped for as a result of winning the war.

The quantities of wheat and other agricultural products that will be desired from the United States will depend not only upon the usual factors but also and particularly upon war-made factors which the Government of the United States can not alone appraise or estimate before the time to plant for the 1920 harvest. The uncertain factors include the resumption of wheat growing in Russia, Roumania, France, and other countries; the British policy regarding the maintenance or enlargement of their present wheat production program; the quantity and availability of supplies in distant wheat growing areas; and the availability of sufficient tonnage.

Recommends Interallied Council.

The commission believes that if there is likely to arise in any allied or neutral Government a need for wheat from the 1920 harvest in the United States, such Government should make a statement to the United States Government not later than May 1, 1919, as to the quantity of such wheat desired.

The commission believes that unusual risks of overproduction should be assumed by wheat-importing nations, which would be the sufferers in case of underproduction. With this principle in mind the commission, therefore, feels that it is desirable to go a step farther in order to prevent so far as practicable an unbalanced production of wheat in the world after the crop of 1919 is harvested. We would suggest that steps be taken to have the nations now associated as belligerents with the United States determine as accurately as may be, not later than May, 1919, what will be the world's needs for wheat from the 1920 harvest so that appropriate steps may be taken to insure an adequate supply through prompt determination and dissemination of international information regarding crop prospects and conditions, and such other steps as may be found necessary to insure adequate production of wheat during the crucial period of post-war readjustment of industry in the affected nations. A similar arrangement might well be considered in reference to meat supplies, sugar, cotton, and wool.

The commission further suggests that these and related subjects might be given adequate consideration if an interallied agricultural council were provided, and recommends that steps be taken for the creation of such a council on which the member from the United States should be the Secretary of Agriculture.

BEDBUG KILLERS TESTED.

The effectiveness of various exterminators of bedbugs is described in Bulletin 707, issued by the United States Department of Agriculture, embodying the results of experiments by the Bureau of Entomology. Hydrocarbon oil sprays (kerosene, gasoline, etc.) were found to be effective against bedbugs, killing, in most cases, 100 per cent within 48 hours; coal-tar creosote emulsions were effective, when used undiluted, but their effectiveness fell very rapidly when they were diluted; mercuric chlorid, as a dust and in a 6 per cent water solution, was found to kill 100 per cent; pyrethrum was found to be very effective, while pyrethrum stems were of little or no practical value; tobacco powders were found to be of little or no value and hellebore to be absolutely ineffective; sulphur fumigation, at the rate of 0.97 pound to 1,000 cubic feet of room space, killed all treated insects; acetic acid ammonia water, coal-tar (chlorinated), cottonseed oil, glycerol, linseed oil, nicotine, oil of pine needles, sabadilla seeds, and turpentine were found to be effective in varying degrees, while a number of miscellaneous materials were found to be ineffective. Copies of the bulletin, which also describes experiments with exterminators of cockroaches, clothes moths, and carpet beetles, may be procured from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JANUARY 22, 1919 No. 25

SEES U. S. AGRICULTURE SOLID AS WORLD ENTERS PEACE ERA

Secretary Houston Says Development is in Right Direction

Warns Against "Farmers of the Farmers" Who Appeal to Prejudice; Wants State Coöperation in Regulatory Work

Peace finds American agriculture on a substantially sound foundation and developing in the right direction, the Secretary of Agriculture, D. F. Houston, said in an address to the Association of American Agricultural Colleges and Experiment Stations, at Baltimore, Md. But much remains to be done in this field, he said, because this fundamental part of the Nation's industrial life will not stand still.

"We shall have our troubles," the Secretary said. "We shall be concerned with numerous proposals from the enthusiasts with limited knowledge and less sense of direction. We shall be pestered by the narrow, selfish partisan and by the demagogues—the farmers of the farmers—their pretended self-constituted friends. These are already in evidence and are revealing for ends of their own a willingness to attempt by misrepresentations and cheap appeals to prejudice to injure great constructive agencies, such as the State agricultural colleges and the Federal department. They will not make much headway. The American farmers are not easily fooled and we may trust them to assess these people and their motives at their real worth.

"We especially, representing great agencies of the State and Federal Governments, will proceed with our assigned tasks, and unless I am greatly mistaken, they will not be tasks of reconstruction, but rather of further construction, of selection, and emphasis. I am confident that the agriculture of the Nation is on substantially sound foundations and is developing in the right direction. Many experienced and disciplined minds and agencies in all parts of the country have zealously been studying the problems for many years, with increasing effectiveness during the last generation, and it would surprise me if it should appear that many novel steps of large proportion will need to be taken."

America's Position Stronger.

Because of a shorter actual participation in the war and its freedom from such devastation, as in Europe, the Secretary said that America's relative position, industrially, financially, socially, and governmentally, is stronger than it was five years ago. He quoted estimates showing that the European belligerents, exclusive of the Balkan States and Turkey, lost more than 7,000,000 men killed and 14,000,000 wounded, many of them permanently incapacitated. The Secretary also stated that the war debt of all the belligerents will range from 175 to 200 billion dollars, of which the share of the United States may be 20 billions, only 11 per cent of its wealth, and $200 a person.

"It is incredible," the Secretary said, "that any thinking man can gain satisfaction from the impairment of the capacity of any part of the world to contribute to the world's national dividend of goods and services. Our thought should be how in the period of recovery we may properly assist the desperately stricken people of Europe, rather than how we can take advantage of them in their present plight.

"A league of nations," the Secretary said, "seems to me to be prerequisite to disarmament in the necessary degree, to the interchange of commodities among nations under rational and equitable conditions, to the freedom of the seas, and to development of the proper attitude and

(*Continued on page 16.*)

SEED EXPERTS VISIT EUROPE TO REPORT SITUATION THERE

Department Acts to Help Meet Domestic and Foreign Needs

Information to Be Used by Government in Shaping Export Policy; Growers Puzzled as to Future Demand

The United States Department of Agriculture has sent two of its experts to Europe to secure information concerning clover, grass, and vegetable seed stocks and requirements in the various European countries.

These men—Dr. A. J. Pieters, of the Bureau of Plant Industry, and W. A. Wheeler, of the Bureau of Markets—sailed for Europe December 30. They expect to visit Great Britain, France, Belgium, Italy, Holland, and Denmark, and the immediately important matters of information that they gather will be cabled to Washington for use by the Department of Agriculture, the War Trade Board, and other governmental agencies in shaping the export policy as to certain kinds of seed. The information will then be disseminated to the seed trade in order that a better general idea may be had of the probable future requirements for field and vegetable seed.

Conservation Need Indicated.

Indications are that the supplies of several kinds of seed in this country must be carefully conserved in order to maintain crop production. At the same time it appears that it may be necessary for the United States to take chances on incurring a shortage of some kinds of seeds in order to meet the pressing needs of the nations that were associated with this country in the war.

Up to this time there is no definite information available as to the needs of

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Great Britain, France, Italy, and Belgium for various kinds of seeds. Holland, Denmark, and other neutral countries very likely have considerable surpluses of certain kinds of seed ready for export to the United States and may at the same time need some kinds of which this country has a surplus. That information, it is expected, will be forthcoming from Dr. Pieters, the forage-crop expert, and Mr. Wheeler, the seed-trade expert.

More Seed Grown During War.

Seed production has been carried forward on a larger scale in the United States during the past few years than ever before. Early in the war it became apparent that seed production was very largely at a standstill in most of the European countries and that with the great obstacles to ocean transportation the comparatively small quantities that were produced could not be brought across. Seed growers in the United States undertook to extend their production both as to quantity and varieties, and the result has been that many of them who were formerly importers have now become exporters. Indications are that there is a considerable surplus of several kinds of seeds, and growers are at a loss to know whether to increase or decrease their acreage or to maintain it at last year's standard. A study of conditions in this country alone would not suffice to answer these questions, but must be supplemented with the information now about to be gathered in the countries of Europe.

Government Help Needed.

Perhaps no line of business was more deeply disturbed by the war than that of seed growing and distribution. Many agencies were paralyzed, and the machinery of the seed trade on the Continent of Europe continues so disrupted as to make the interchange of seeds needed for next spring's planting very difficult. Seed growers and dealers feel that individual initiative has been practically exhausted and that during the period of reconstruction the work should be carried forward through Government agencies. It was largely in response to this demand that Dr. Pieters and Mr. Wheeler were sent to Europe by the Department of Agriculture to make a first-hand study of seed production and marketing problems.

A handful of rags fastened to a pole and soaked in kerosene is an effective weapon to burn out nests of gregarious insects, as the apple-tree caterpillar, fall-webworm, and others.

BUY WAR SAVINGS STAMPS.

Grade Cattle May Be Certified Free from Tuberculosis; Much Done in Year

The tuberculosis-free accredited-herd plan, inaugurated in December, 1917, and worked out in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, was slightly changed at the twenty-second annual meeting of the United States Live-Stock Sanitary Association held at Chicago in December. It was agreed to strike out the words "pure bred" so as to admit to certification grade herds in addition to registered cattle.

Want Work Extended.

The annual conference between representatives of the United States Live-Stock Sanitary Association and the Pure-Bred Cattle Breeders' Associations resulted in the further indorsement of the tuberculosis eradication campaign and a recommendation that the work be extended as rapidly as possible.

The accredited-herd plan is to test cattle with tuberculin at the request of the owner, eliminate any reacting animals either by slaughter or by following prescribed sanitary measures, repeat the test at prescribed intervals, and list as tuberculosis-free accredited herds all herds entitled to that distinction.

Progress in 1918.

Very satisfactory progress has been made during the first year of the work, and prospects for the future are bright. During the year 296 herds, comprising 9,284 cattle, have been fully "accredited" as free from tuberculosis, and 1,462 herds, having 35,052 cattle, passed one successful test in preparation for certification. In addition, 4,622 herds, both pure bred and grade, totaling 98,002 animals, have been under supervision for the eradication of tuberculosis. Each month additional herds are added to the list. A revision of List No. 1 of accredited herds will be made in the near future, and when printed will be widely distributed, as was the original list, the supply of which is now exhausted.

Details by States are given in the accompanying table:

HOW TUBERCULOSIS WORK AMONG CATTLE STANDS NOW.

State.	Pure-bred herds accredited.		Pure-bred herds once tested without reactors.		Pure-bred herds containing one or more reactors.		Grade herds under supervision.	
	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.
Alabama			23	655	12	682	88	4,102
District of Columbia	1	134					300	1,206
Florida			24	664	4	194	2	14
Georgia			14	916	11	953	212	5,379
Illinois	2	163	19	445	21	801	3	44
Indiana	17	377	64	1,295	39	989		
Iowa			4	77	8	395		
Kansas			18	345	12	261	4	19
Kentucky			57	1,589	23	1,284	2	88
Louisiana	1	18	15	1,059				
Maryland	2	21	28	723	37	1,122	90	1,595
Michigan	13	260	61	1,561	54	2,250		
Minnesota	88	2,987	186	5,031	131	4,826	374	5,236
Mississippi			42	1,063				
Missouri					3	127		
Montana	11	262	19	548	21	1,076	824	14,873
Nebraska			1	2	13	458		
New York			7	160	10	366	2	97
North Carolina	1	37	63	997	22	832	144	2,104
North Dakota	59	1,654	167	2,731	53	2,032	341	3,243
Ohio	1	25	75	1,495	94	4,225	4	15
Pennsylvania			59	675	26	801	10	119
South Carolina			26	756	12	610	78	2,512
South Dakota			8	231	23	708	101	621
Tennessee	2	99	20	595				
Texas			2	71				
Utah	4	155	16	300				
Vermont	8	294	72	1,888	67	2,551	162	2,954
Virginia	54	2,062	155	4,186	75	3,358	659	14,660
West Virginia			10	226	2	62	7	77
Wisconsin	9	344	50	1,374	29	1,265	2	25
Massachusetts, Maine, New Hampshire, Connecticut, Rhode Island	11	147	97	1,551	75	2,465	299	2,473
Delaware, New Jersey, Oregon, Washington	12	245	52	1,684	22	820	6	146
Delaware, New Jersey			8	179	8	855	1	27
Total	296	9,284	1,462	35,052	907	36,368	3,715	61,634

MERCHANTS SEEK TO GIVE FARMERS BETTER SERVICE

Step Taken to Promote Better Understanding for Common Benefit.

Wisconsin Lumber Retailers, in Conference With Extension Workers, Receive Light on Some Agricultural Problems.

Wisconsin lumber dealers propose in the future not only to handle lumber, but also to sell service.

This decision was made at a conference of the retailers and the State's agricultural extension workers recently held at the college of agriculture.

More definite service to the farm trade was the keynote of this conference which leading lumbermen in attendance believe "will long stand out as the most important event in the history of the Wisconsin association, having inaugurated, as it has, a new era in the business life of its members that can not fail to introduce greater prosperity to both parties."

The officials of the Wisconsin Retail Lumber Dealers' Association, in common with those of similar organizations in other States, have long realized the need of bringing the retailer and the farmer closer together by interesting the one more fully in the other's problems. This is thought to have been the first united step ever taken in this direction. Keen interest—even enthusiasm—was evident and the dealers seemed to appreciate fully the great possibilities through extensive cooperation with the farmer.

Bankers in Touch With Farming.

The bankers of Wisconsin, the secretary of the lumbermen's association pointed out, have not been slow to appreciate the importance of cooperation with the agricultural extension workers and the station experimenters. For several years they have made annual trips to their agricultural experiment station in order to keep posted on the latest developments in farming.

Between 75 and 100 of the State's leading retailers listened with close attention to talks and demonstrations on "Why a cow does better in a properly constructed and ventilated barn than in a stuffy, poorly lighted stable; why silage is a necessity in the proper feeding of cattle; why a portable hog house and self-feeders may be of value to the hog movement; and why, for instance, pedigree rye means a larger crop, and hence more bin capacity on the farm than when scrub rye is grown."

As a result of the conference it is predicted that there will develop a mutual understanding between the retailer and farmer. One of the members said, "It is cold logic that the retailer who sells the lumber should be prepared to render whatever assistance the farmer may need in planning his dwellings and other farm buildings. Cooperating with the extension workers, he should maintain an efficient plan service and should be as competent in advising in barn and similar construction as in the building of a dwelling.

Retailer Should Study Problems.

"But his service must go much further than dealing with building. The average retailer handles a number of side lines, with lime as one. But often he knows nothing about its application to the soil as a remedy for acidity, nor how to test the soil to ascertain the amount of lime necessary to secure the best results. He handles tile and cement drainage pipe, but does not know enough about drainage to give practical advice that will assure the farmer lasting satisfaction from his drainage installation. He should study all these things, so as to be able to offer the farmer real service and aid in the upbuilding of his community. He should communicate his intention to become a community worker to his State agricultural college and receive from it and other sources bulletins and literature on farm problems and management, so that he always would have the information at his fingers' tips when called for.

"It is clearly seen what the results of such progressive merchandising would be. By showing the farmer by his service that he is his friend and interested in his welfare, the retailer would cultivate confidence in himself and in his judgment; and confidence means the farmer's business, present and future. Service is the big thing of to-day. Getting on common ground with the farmer and learning to talk to him in his own language will be all important during the new era of business that is now dawning."

MORE THAN 100,000 VETERANS NEEDED IN ROAD BUILDING.

In response to requests for information, the Bureau of Public Roads of the United States Department of Agriculture has collected from the highway departments of the various States figures indicating the probable number of returned soldiers and sailors that can be used during 1919 in road construction and repair work. Of the 38 States replying only 29 gave definite figures. They report they can use 11,637 soldiers and sailors as skilled laborers, and 91,904 as unskilled. Under the head of skilled labor the State highway departments were asked to report on the requirements for masons, carpenters, quarry bosses, concrete finishers, road foremen, roller men, and superintendents. Unskilled laborers were not separated into classes.

The States that have thus far given definite figures, with the estimated number of men that may be used, are:

State.	Skilled.	Unskilled.
Alabama	60	1,000
Arizona	48	100
Colorado	.....	1,250
Connecticut	(1)	(1)
Delaware	100	1,000
Florida	685	4,315
Georgia	(2)	(2)
Idaho	.....	200
Illinois	2,500	15,000
Kansas	1,000	4,800
Kentucky	826	3,500
Louisiana	110	1,000
Maine	100	1,000
Massachusetts	150	2,000
Michigan	200	2,500
Minnesota	1,200	4,800
Mississippi	(2)	(2)
Montana	101	644
Nebraska	267	2,250
Nevada	35	265
New Hampshire	332	1,000
New York	1,400	7,000
Oregon	270	2,430
Rhode Island	50	450
South Carolina	.....	1,500
Virginia	900	5,100
Washington	.....	.....
West Virginia	700	9,300
Wisconsin	600	7,500

[1] Skilled and unskilled, 4,000.
[2] Skilled and unskilled, 2,000.

DECEMBER LIVE STOCK RECEIPTS.

Increased receipts of cattle, hogs, and sheep at 40 markets during December, 1918, compared with receipts at the same markets in December, 1917, are shown by a report just issued by the Bureau of Markets, United States Department of Agriculture. December receipts for both years, with 1918 figures first, were: Cattle, 1,909,093—1,685,008; hogs, 5,012,762—3,695,555; and sheep, 1,450,645—1,437,596.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended January 11, 1919:

The Significance of the Colon Count in Raw Milk. Professional Paper. Department Bulletin 739.

The Economical Use of Fuel in Milk Plants and Creameries. Department Bulletin 747.

Sweet Clover on Corn Belt Farms. Farmers' Bulletin 1005.

Recreation Uses on the National Forests. (Forest Service.)

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

HOW COUNTY IS WORKING ITS COUNTY AGENT OUT OF A JOB

"Average" County, West Virginia, Organized for Better Agriculture

Community that Had Bad Luck with Farmers' Associations Finally Adopts Right Way and Wins Real Success

"AVERAGE" COUNTY IS ACTUAL.

If there were in West Virginia an "Average" County, the statements in this article would fairly represent its farm-bureau activities—counties in West Virginia having achieved results both better and worse than here recorded for Average County.

As to Midvale, it is typical of scores of West Virginia country communities. The statistics as to size of farms, mortgages, and the like are State averages based on the census of 1910. Everything here suggested has been actually carried out somewhere in the State.

Persons who desire additional details about the community work as conducted in Midvale and other West Virginia communities should write to the West Virginia Extension Department at West Virginia University, Morgantown, W. Va., for the circular, "Focusing on the Country Community," from which this article has been prepared.

Midvale is in Average County, W. Va. It is situated in a corrugated country with ridges and valleys not unlike parts of Scotland, Switzerland, Wales, or Serbia of the Old World. If it had inherited the laws and customs of all the thousand years of communistic farming through which these older countries passed in the Middle Ages the ridges might still be in "commons" for pasture and woods. But Midvale is in America, settled two or three generations ago by people whose individualism seems to have been a propelling force that drove them into the wilderness of this hill country. Every pasture boundary is well defined as to ownership, and line-fence quarrels, even lawsuits, have not been unknown. Yet the economic necessities of their situation, the similar farming, marketing, and living problems have forced into the hearts of the Midvale folks the truth of a proverb which originated in the hills of old Serbia—"A man by himself is bound to be a martyr."

The 56 farm families of Midvale are distributed along the waters of Middle Branch for 7 or 8 miles with their hill fields sloping up to the ridges bounding the 15 square miles called Midvale. They know each other well. There is not a little of the spirit of clannishness. The Midvale community is geographically well defined by the fringe of hills which separates it from other neighborhoods on other streams.

Some years ago several men from Midvale belonged to a farmers' organization which made many promises of better things for farmers, but soon went onto the rocks of partisan politics and broke up. Organizers of subsequent farmers' movements visited Midvale, but without response. This one "sorry experience" made the whole neighborhood overcautious on organizations, especially when membership involved financial outlay. This is explanatory of why, about three years ago, only three Midvale men, all of whom happened to have been members of the old Middle Branch Grange, signed the roll of a local farm bureau and petitioned the country commissioners to match the State agricultural extension department with the funds which would make possible the employment of a qualified agricultural agent.

The County Agent's Motto.

The agent was appointed. From the very outset all his ambitions were directed toward the fulfillment of his motto—"My job is to work myself out of a job."

In a word, he tried to make Midvale farmers help themselves, not only in the way of better farming practices, but also along lines of improved country living and rural uplift. It was not until the season of 1917 that the county agent be-

HOW THE LIGHT CAME TO "AVERAGE" COUNTY.

This is the way the U. S. Department of Agriculture and the West Virginia College of Agriculture focus their aid

gan regular visits to Midvale. With the help of the local school-teacher he organized the boys' and girls' club to carry on home projects, have club meetings, and hold a community exhibit in the fall. The agent also got acquainted with the parents and kept the individual farmers informed as to the win-the-war work which devolved upon them. Finally, he decided that the time was ripe for calling together the community leaders, taking stock of the community resources, material and spiritual, and organizing for constructive action.

At his suggestion, seven men and four women met one evening for the purpose of making a brief survey of the community. It was ascertained that the 236 Midvale inhabitants belonged to 56 families, of which 54 were native to the State, while one of the others was Pennsylvania Dutch, and the other a colored family from Virginia. Forty-four of the 56 families were living on their own farms and operating them largely with their famiiy labor. There were only 11 mortgages against the 56 farms of the whole community. Eight of the farms were less than 20 acres in size, 27 were between 20 and 100 acres, 18 between 100 and 260 acres, and three more than 260 acres. The average size was 104 acres, 57 acres of which was improved land.

Farm Income Found Inadequate.

The average farm net income was found to be about $350; in addition, several hundred dollars were derived by many families from the sale or lease of minerals underlying the farm lands. It was generally agreed that the part of this income from the farm was inadequate for the support of such community life as those present already visualized for Midvale. They decided that the solution lay not in protests but in concerted action for better farming. They decided to hold a meeting where the situation might be laid before all the local residents.

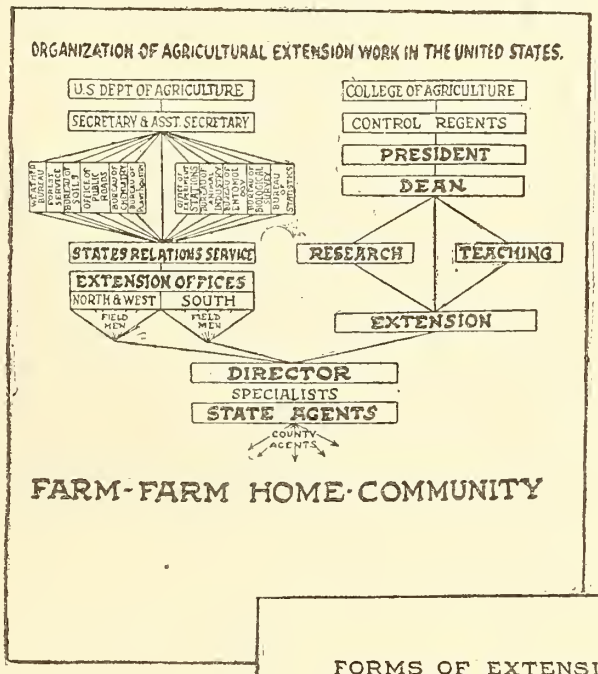
A meeting attended by 72 Midvale people was held at the local schoolhouse, where the matter was thrashed out, with the result that 18 men finally signed a club constitution which made them a part of the county farm bureau. The home demonstration agent subsequently met with the women to organize an auxiliary farm women's club, while the school-teacher agreed to continue as local leader for the boys' and girls' club.

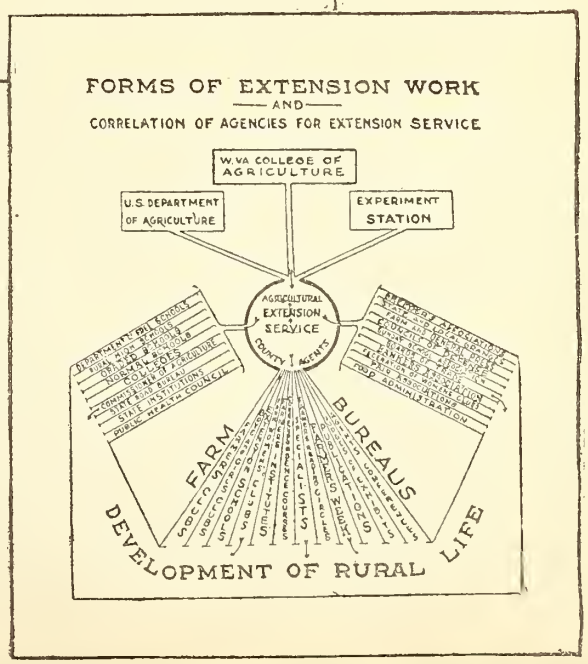
Later on the question of the community score card as a help to proper self-development came up. Midvale requested assistance through the county agent, so that it could be scored. It was determined to consider historical, religious, educational, domestic, social, political, health, agricultural, and economic factors in the score card, which was to be arranged in accordance with that used by a neighboring community. State officials promised to visit Midvale for the purpose of scoring the community.

Started with Community Meetings.

Pioneer work in the development of the Midvale community took the form of a series of social-center programs, which included music, recitations, lectures, debates, or discussions, and farmers' reading-circle lessons. The first course taken up by the farmers' reading circle consisted of work on soil fertility, it being followed the second year by a course on farm crops, and the third year by animal husbandry. The leader appointed by the club had attended two winter short courses at the State college of agriculture. He was made to realize, first, that he must read the subject-matter and have the lesson well in mind before going to the meeting; second, that he must make clear each statement in the lesson outline as it came in its regular order; third, that he must get the members interested by encouraging them to take part in the discussions; fourth, that he must give no one topic an undue amount of time at the sacrifice of the others; and, finally,

AGRICULTURAL TIES THAT BIND—NATION, STATE, AND FARM.





This is the machinery and the channels through which the Federal Department of Agriculture and its allies, the State agricultural colleges, transmit helpfulness to American farmers—in this instance West Virginia farmers.

that the success of the reading circle would depend largely upon his ability to do these things.

At the council meeting of the farm bureau the presidents of the 10 farmers' clubs, including the one at Midvale, prepared a country plan of work for 1918, based upon the 10 community plans. It was agreed that two new communities not yet organized should be listed for 1918 and extension activities so focused on them as to bring about, if possible, constructive community activities sometime during the year. In order to make it possible for the county agent to spend the necessary time in these communities, two of the older clubs voluntarily agreed to give part of the county agent's time formerly allotted to them, while they also promised to send delegates from their clubs to assist the county agent in starting the work in the new communities.

The report of the bureau's markets committee showed the cooperative buying of more than 200 cars of 16 per cent acid phosphate and lime, as well as quantities of grass and clover seed, at a total saving of more than $8,000 to the members; and also the pooling in carload shipments of lambs, wool, potatoes, and like material at prices which promised to bring about a large increase in cooperative shipping for another year. Seven community exhibits centering around the work of the boys' and girls' clubs were held and a county agricultural and live stock exhibit at the county seat was successfully financed out of the treasury of the bureau, without charging admission and with no solicitation from the town other than that of some merchandise premiums.

Planned War Work.

As a result of the extension conference held at the West Virginia Agricultural College late in 1917, it was decided that the essential war work for the community clubs during 1918 would be: (1) To drain about 1,500 acres of wet land so it could be put into profitable production; (2) to increase staples by cropping more acres—corn about 235,000, wheat about 63,000, potatoes about 9,000, soybeans about 2,700; (3) to produce more pork by keeping 3,300 additional sows; (4) to increase the number of sheep by saving 129,000 additional ewe lambs; (5) to plant enough additional war gardens to produce truck to the value of $1,000,000; and (6) to can, dry, and otherwise preserve foods, formerly wasted, to the value of $55,000.

On the front wall of the schoolhouse in which their community club regularly met the good people of Midvale posted an enlarged outline of their community plan of work—war-time increases and all. With genuine interest they put their program for increased production "over the top." This community soon rose to the task of solving its own problems with the assistance of the county agent. Whenever a matter of importance came up, the solution of which was impossible under local conditions, the matter was referred either to the State agricultural college or the Federal Department of Agriculture. The extension specialists aided the communities with articles on critical points of local farm management; they arranged reading-circle lessons for the guidance of those interested in this work; they supplied popular circulars or bulletins for general distribution on agricultural subjects of local interest; they made public addresses before club meetings; they visited demonstrators with the county agents, and in other ways were of similar assistance.

Aid 400 Rural Communities.

Striking results of great importance to 400 rural communities in West Virginia which have been assisted in community development by the State extension department indicate the great value of this work in the promotion of better systems of farming and improved living conditions for the rural districts. Such an organization permits the individual communities to work in combination and along cooperative lines to accomplish efficiently and promptly what as unorganized localities they would be even afraid to attempt. The effects of this organization from an agricultural standpoint in winning the war have been notable.

What Hardy County Did.

For example, in Hardy County, which is not so different from average, through the combined activities of 10 community clubs, 2,585 additional acres of corn, wheat, and beans were harvested in 1918 over 1917, yielding an increase of 43,100 bushels, with a value of $75,100. For the fall seeding over 1,000 bushels of the seed wheat were treated to prevent disease, where none had been treated formerly. Over 100 farmers selected seed corn for 1919 from the fields in the fall of 1918. Ten community bulls of superior breeding and individuality were secured and patronized by 125 farmers. Three new herds of registered cattle were established. Twenty-two registered rams were brought into the county and bred to 1,000 ewes. The sheep owners kept for breeding purposes 500 ewe lambs more than ordinarily. One thousand sheep were treated for stomach worms. Thus the Hardy County farmers anticipated the appeal of November 13 by Secretary Houston "to adopt every feasible means of increasing our live-stock products."

Boys and Girls on the Job.

The boys and girls likewise did their part, producing corn and pigs and poultry at a net profit to 74 members of $2,330. The farm women's clubs not only canned and brined and preserved for their own home use, but sold enough of their products to contribute $130 toward the endowment of hospital beds in France.

The county agent was active in all this, visiting the different communities regularly, inspiring and assisting with their problems. But the results secured were due largely to the local leadership displayed by the bureau and club officers and committees.

Briefly, this community and many more like it in West Virginia and other sections of the country are doing their utmost "to work the county agent out of a job."

Satsuma Orange Varieties for Commercial Culture in America

The Satsuma orange, from Kiushu, the southern island of Japan, on account of its general superiority, has rapidly displaced other groups of oranges in the country of its origin, according to a special publication, "Varieties of the Satsuma Orange Group in Japan," from the Bureau of Plant Industry, United States Department of Agriculture.

In this publication six varieties of the Satsuma group are dealt with in detail, the Owari, however, being considered the best of this group for commercial purposes in certain restricted districts in the Southern States because of its early ripening quality, its large size, and good form and appearance. This variety is now being cultivated commercially in a few localities in the Gulf coast region of this country.

Japanese horticulturists have propagated several distinct uniform strains of the Owari variety by taking buds from special trees or branches bearing superior fruit, and the writer of the bulletin advises a similar practice by American horticulturists. He further recommends the trial in the Gulf States of the extra early Wase variety, the flat-fruited Hira variety, the Ikiriki variety, and the luxuriant Mori strain of the Owari variety.

War has not prevented Canadian farmers from increasing their live stock. The gain of one year, 1918 over 1917, is conspicuous, and the gain over 1914 is remarkable. Cattle other than milch cows were 6,507,000 in 1918; milch cows, 3,542,000; sheep, 3,037,000; swine, 4,290,000; horses, 3,608,000.

Last Year's Plan Generally Followed in Rules for Spring Seed-Grain Loans

Regulations governing the making of seed-grain loans by the Government to farmers in drought-stricken areas for spring-wheat planting in 1919 are given in a joint statement issued by the Treasury Department and the Department of Agriculture. The regulations in the main are similar to those that governed loans for fall planting in drought areas.

However, the maximum limit for loans for spring planting will be $500, while the limit for fall-planting loans was $300. The money available is that remaining in the President's $5,000,000 special fund set aside for such loans. A survey of the situation, the Secretary of Agriculture has stated, indicates that the remainder of the fund will take care of the urgent cases.

Federal Banks Are Agents.

The Federal land banks of the districts embracing the affected areas are designated as the financial agents of the Government in making and collecting the loans. They may designate local banks or other agencies to represent them in the taking of applications, forms of which will be supplied on request. Banks and other local agencies assisting will be asked to contribute their services for the good of their communities.

The question of making each loan will rest first with the Department of Agriculture, which, through its various agencies, assisted by farm loan associations and other local farmers' organizations, will investigate each application. Loans may be made to farmers in arrears determined by the Department of Agriculture, who have suffered two successive crop failures from severe drought or winter-killing, and may be made to individuals found by the Department of Agriculture to have acreage fit for planting, and who, by reason of such crop failures, have exhausted their resources and are without commercial credit. To obtain a loan the farmer must have unencumbered real or personal property sufficient to secure a loan of $500.

Must Use Approved Methods.

Applicants must agree to use seed and methods approved by the Department of Agriculture. The primary object of these loans is not to stimulate the planting of an increased acreage of grain for the drought areas, or even necessarily to secure the planting of a normal acreage, but rather to assist in tiding farmers over the period of stress.

IMPROVING BLUEBERRY INDUSTRY.

Among about 20,000 blueberry hybrids that have fruited thus far on the Government testing plantations at Whitesbog, near Brown Mills, N. J., several bushes have produced berries three-fourths of an inch or more in diameter. This work indicates that important progress is being made to improve the blueberry industry in the United States. Only such plants as possess fruit with small seeds and delicious flavor, as well as other desirable qualities, such as color, productiveness, and hardiness, are selected for propagation and distribution.

SEEDS AND PLANTS FOR ALASKA.

Plant-breeding work in grain, truck, and general farm crops is being conducted at Alaska experiment stations. In the spring of 1918 more than 4½ tons of seed grain, as well as a large amount of nursery stock and vegetable seeds, were distributed among the homesteaders in the Matanuska Valley and the region around Knik and Anchorage.

FIRST CONVICTIONS ARE REPORTED UNDER MIGRATORY BIRD TREATY ACT

First convictions under the Federal migratory bird treaty act are announced by the Bureau of Biological Survey, United States Department of Agriculture, under which the administration of the act is placed. Many other convictions are likely to follow, it is said.

The first conviction was late in December in Portland, Me., when Judge Hale assessed a fine of $25 against Aggrippino Limole on a charge of shooting insectivorous birds.

The second conviction was at Hot Springs, Ark., when Phil Levy, charged with having egret plumes in his possession, was fined, and $1,500 worth of plumes were confiscated by order of United States District Judge Trieber. As the plumes were not secured from birds taken near Hot Springs, this case is likely to have ramifications extending into various sections of the country.

The officials of the Bureau of Biological Survey contemplate no great difficulty in enforcing the law over the country as a whole, largely because of the fact that in most sections the sportsmen are giving the law their solid support. In a few localities, however, such support has not been given and many persons have apparently gone on the assumption that no serious effort would be made to enforce the law. After a few convictions, to emphasize the purpose of the Department of Agriculture to enforce this law, this attitude may be expected to change.

Saturday Service League Plans to Continue Work Started in War

Curiously enough, in the State which has as its motto "Here we rest"—Alabama—originated the idea of the United States Saturday Service League, which during war times induced more than 50 per cent of the Negroes of that State to work on Saturday, dropping the custom of years of laboring five days in the week and resting on Saturday.

That was a war-time measure, but the returns from the extra labor have been so satisfactory that the league will continue its activities during peace. T. M. Campbell, district agent for Negroes, representing the Alabama Polytechnic Institute and the United States Department of Agriculture, has given certificates of merit to those who have rendered efficient service in the league. Through these local leaders plans are being made for local leagues which will be given names. For example, one will be the "Pine Hill Saturday Service League." Each local will admit men, women, boys, and girls. Five members other than the officers will be necessary.

During the Negro Farmers' Conference at Tuskegee Institute, January 22 and 23, a separate conference for the U. S. S. S. L. is being arranged, and if the expected interest is shown, a State organization will be formed to carry on the work, which has already been given much headway. There are now 5,091 bona fide members in the league in Alabama.

Canadian farmers increased their oats production to 457,000,000 bushels in 1918 from 403,000,000 bushels in 1917; barley, to 83,000,000 from 55,000,000 bushels; rye, to 10,400,000 from 4,000,000 bushels; field peas, to 4,400,000 from 3,000,000 bushels; beans to 4,600,000 from 1,300,000 bushels; buckwheat, to 11,500,000 from 7,000,000 bushels; flaxseed, to 7,700,000 from 5,900,000 bushels; and corn for husking, to 6,900,000 from 7,800,000 bushels.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

REPRESENTATIVES from every State in the Union came together in Washington the first week in the new year for the annual meetings of the State leaders in home-demonstration work. Every State leader in this branch of the extension work, which is under the supervision of the Department of Agriculture in connection with the State colleges, attended one of the two big conferences.

A joint meeting of the Northern and Southern leaders was held the first day. At this the address of welcome was given by Dr. A. C. True, Director of the States Relations Service. In the past year every effort was made by the Government to reach the homes of the Nation and to persuade and teach the housewives to conserve foods and use substitutes. One million five hundred thousand women came in direct contact with the home-demonstration agents, Dr. True said. The energies of the whole force were devoted primarily to conservation and to helping win the war while effort along this line was necessary. With the armistice signed, the aim and purpose of the home-demonstration agents' work changed somewhat, and the organization and work now go on a peace basis.

A rapid change is taking place in the American system of education, Dr. True believes. It is realized now that education in a democracy must be directly related to the life work of the individuals. This is especially true of women, and from now on practicable education for their life work will be given them in the schools. Great masses, however, in this generation will not have had this instruction in their school life, and it is the extension worker who must give it to them.

The work is in the city now, and must stay there because it is giving valuable assistance not given by any other agency.

During the coming year in the rural work, stress will be put on increasing the refinement and attractiveness of farm life. The home conditions should be made so attractive that the women will not desire to move to the city. Additional effort will be put forth to make more of the community life so it will be satisfactory to the people there.

In the city, perhaps even more than in the country, it will be necessary to encourage thrift. Both in the country and in the city matters of public welfare, like health, care of children, etc., must be promoted.

THIS YEAR'S HOME-DEMONSTRATION PLANS.

Leaders in 33 Northern and Western States recommended the following projects for immediate work by the home demonstration agents:

1. Continuation of the thrift campaign, the foundation for which was laid in war conservation work. This is especially necessary while prices remain high and wages tend to return to lower levels. It is imperative that the whole Nation unite in developing habits of thrift.
2. Home production of food.
3. Increased home conveniences.
4. Marketing of products of home idustries.
5. Continuation and extension of food work inaugurated by the Food Administration, with special emphasis on nutrition.
6. Continuation of the work started by the Children's Bureau so as to emphasize the importance not only of proper feeding but of right sanitary conditions and care of infants and children.
7. Teaching of home nursing, the need for which was demonstrated by the influenza epidemic and the shortage of nurses.
8. Improvement of living conditions of women in industry and of families receiving public benefit, such as given by the civilian relief of the Red Cross or by the State (mothers' pensions).
9. Development of better housing conditions as a continuation of the improvement of standards set for laborers in war idustries.
10. Work with foreign women in both rural and urban districts to aid in Americanization.

The home-demonstration agent will endeavor to bring more sympathetic relations between the city and the country and, above all, to promote the principles and activities of a real democracy at this time when autocracies are breaking up.

Well-Known Foreigners Speak.

Count de Wirzbicki, of the French High Commission, gave an address to the conference on the homes of France, and suggested that the American people might learn much of the principles of thrift from the French, to whom it is an old story. The French nation would have died of starvation two and one-half years ago, Count de Wirzbicki said, if the French women had not known how to utilize to the last scrap every bit of material which could be used for food.

Fewer dishes on the American hotel menu, those few better cooked, and every bit which is served eaten, was one of the many practicable suggestions made by the Frenchman.

Lieut. David Constantini, of the Italian Bureau of Information in Washington, spoke of conditions existing in his native land both in the city and country. He told the assembled leaders how the war affected the Italian home and the women of Italy.

In the afternoon of the first day of the conference Mrs. David F. Houston, wife of the Secretary of Agriculture, entertained the State leaders at her home. Mrs. Barnett Smith, of London, spoke on "What English Women Have Done and Will Do in the Reconstruction."

During the rest of the week separate conferences were held with programs in both the Northern and Southern sections.

The Department of Agriculture, cooperating with the State colleges, has had 1,700 girls and women doing extension work during the past year, and to them the State leaders will carry back the inspiration of these conferences. They, in turn, will pass on to the women with whom they come in touch the message of thrift, more efficiency, more community life, and beautification of the home and its surroundings. And such is the nature of the home-demonstration work that not only will they explain these projects of the Department of Agriculture, but they will show housewives just how to carry them out.

Farm Bureau Guards Health of Children in Idaho County

The farm bureau of Minidoka County, Idaho, is concerned not alone with increasing direct returns from farming, but

with problems of sanitation and the care of children. A woman specialist from the home economics department of the Idaho State Agricultural College last summer visited the county six times under the auspices of the county farm bureau, and held 18 meetings with a total attendance of 670 people.

During one visit, when the weighing and measuring of children under 5 years of age was being featured, 800 children were brought before the specialist. Following an examination of the pupils of one school for physical defects a permanent record was established, and equipment provided for continuing the records of the children from year to year.

Bedroom, with Windows Closed, Becomes Home Drying Plant

Just because you have no money to invest in a commercial drier is no reason for going without one, in the opinion of a woman in Jefferson County, Fla.

The home demonstration agent who supervises the work in that county has been giving demonstrations on drying vegetables to the women of the various neighborhoods.

Going one step farther than drying around the stove, one woman thought out a practical arrangement in her own home for drying vegetables on a large scale with practically no expense.

She removed all the furniture from a small bedroom except an iron bedstead and its springs. This bedstead was placed in front of the fireplace, wherein a big fire was built. On the bedstead she arranged large trays in tiers. With the windows closed the whole room was a drying oven, and a temperature of 108 could be maintained easily. Everything from corn to figs has been dried by this novel arrangement.

Made-Over Clothes Demonstrated at Worth-While "Fashion Shows"

The new fashion show or "clothes clinic" has come to stay while the need for saving clothing exists. The work is being done chiefly under the leadership of the home demonstration agents of the Department of Agriculture in connection with the State agricultural colleges.

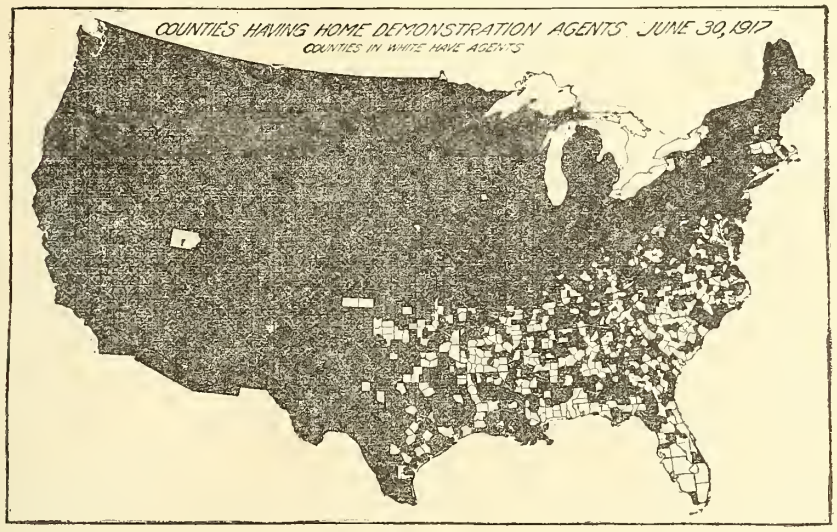
In clothes conservation it is hardly possible for Johnny to wear father's clothes unless a hand with some degree of skill takes hold of them. To train women to see the possibilities in old clothing and to teach them how to transform the articles into garments suitable for wear is part of the work the home demonstration agents are doing.

The campaign is particularly strong in Iowa. The women at a successful demonstration in Muscatine County not only brought the garments they wished suggestions on how best to make over, but also the cleverest examples of made-over garments they already possessed, including dyed shoes, home-made hats, coats, stockings, underwear, neckwear, and dresses. The owner of each article explained the difficulties in making and how she overcame them. Each child present wore a made-over garment and explained how it was made. The home demonstration agent talked on the renovation of clothing, removal of stains and shine, how to dye, and other related topics.

At another fashion show in the same county there was a "dress parade" of the order staged by the big city stores at the opening of seasons. But instead of Parisian styles the models wore made-over garments. The transformations which were shown and described were greeted with enthusiasm.

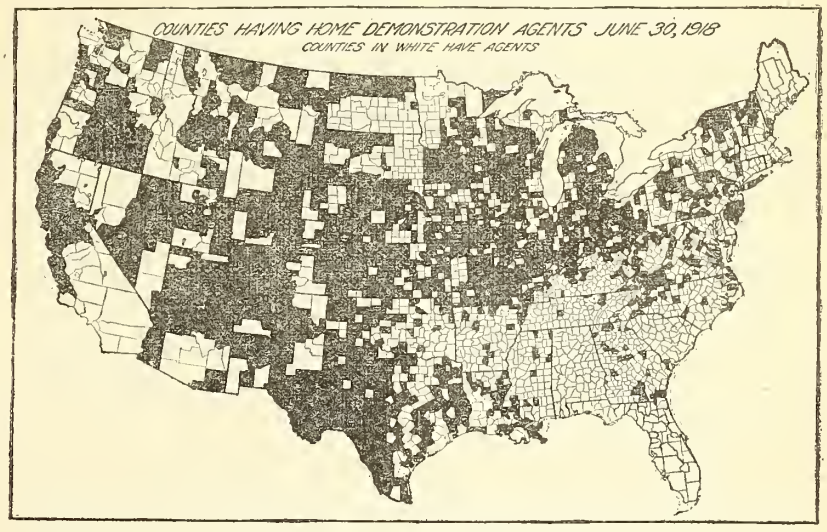
One of the little girls wore a pretty woolen dress made from a pink woolen nightgown. Her mother had six children and had not purchased a new garment for any of them since the first was 4 years old. This has been made possible by gifts to her of many worn adult garments which she had made over. At the "show" the six children were "conservation" from head to foot, wearing made-over

A YEAR'S TRANSFORMATION FROM DARKNESS TO—



In 1917 the number of counties served by home-demonstration agents was 537.

—LIGHT IN HOME DEMONSTRATION WORK



In 1918 the number of counties having the services of home-demonstration agents had increased to 1,715.

hats, underclothing, dresses, and coats, while one had shoes which had been half soled by the clever-fingered mother.

Makes a Heat-Holding Bottle, Useful with School Lunches

A bottle to keep liquids hot, made from a salad oil bottle, an oatmeal carton, some excelsior, and 13 cents worth of oilcloth for a cover, is the creation of an Alabama girl, a member of a boys' and girls' club of that State.

Sawdust, hay, burlap, paper in pulp form, or soft material that easily may be compressed may be used instead of excelsior for packing between the glass and the carton.

"The bottle was a success from every standpoint; the very thing for children to carry to school and not break," writes the Coker field agent to the States Relations Service, United States Department of Agriculture. "It keeps liquid hot for four and one-half hours by actual test."

The device was shown at a recent county demonstration.

Women Found to Be Efficient as Meat Products Inspectors

During the 12 years since the meat-inspection law was passed, and until late in 1918, the important work of inspecting the products put out by the more than 850 meat-packing firms which have interstate or Federal trade was done entirely by men. Last April, however, when the war reduced the number of available men, it became necessary either to throw open the examinations to women or to discontinue part of the work. The first alternative was chosen, and in the past six months about 230 women have been doing valuable and efficient service in Government meat inspection. The title they hold is that of assistant meat inspector.

An exceptionally fine field to choose from was available because of the number of applications received when it became known that women could take the examination. A common-school education was all that was required for the position, but many of the applicants were normal and college graduates, and a great many were teachers from public schools. Some had taught domestic science.

Nearly all the large packing concerns which require meat inspection are located east of the Rockies and north of the Ohio River; and in nearly all of them now may be found the white-uniformed women inspectors.

The work of the majority of the women in the service is inspecting the sanitary conditions, because absolute cleanliness in every detail is required by the meat-inspection law, and ascertaining that the ingredients put into the canned products are what they purport to be and what the label on the outside calls for.

The wise housewife buys meat which bears the Government inspection brand. She knows by this blue label that it was handled in a cleanly way and that it left the packing house in perfect condition. Not only is this true of the canned products from the Federally inspected packing houses, but the label also tells just what are the ingredients in the tin and the weight.

Sweet Clover Good for Improving Soils; Handling Methods Discussed

Sweet clover is grown on many corn-belt farms for the express purpose of soil improvement, for which purpose it is unequaled by any other legume, says Farmers' Bulletin 1005, recently published by the United States Department of Agriculture. In cases where sweet clover is grown for this purpose the end in view is to provide the greatest possible amount of nitrogen in the soil and vegetable growth to be plowed under. It is clear, says the bulletin, that the second-year crop, which would otherwise be devoted to seed production, will give the greatest growth in soil improvement, but there are difficulties in plowing under this crop unless certain methods of handling it are followed.

According to the bulletin the fall crop of the first year should be cut for hay, which will not lessen seriously the amount of material finally returned to the soil. About the middle of May the second-year crop should be clipped from 8 to 12 inches high and allowed to remain on the ground. In order to prevent too heavy a growth it may be necessary to clip the crop again early in July, this time from 12 to 18 inches high, if possible. This clipping also remains on the field. After the second clipping considerable growth and some seed will be produced, all of which, together with the two clippings, may be plowed under later in the fall without special difficulty.

This is the method that should be followed if horses are to be used for plowing, but when a tractor is available clipping is unnecessary, for with this source of power a very heavy crop of second-year growth can be plowed under satisfactorily. On several occasions large acreages of sweet clover which have failed to produce seed have been plowed under by the use of a tractor and gang plows equipped with special jointers, which are very effective in turning under and completely covering large amounts of vegetable matter of this kind.

DESCRIBES DEPARTMENT'S EFFORTS FOR RELIABLE PRODUCTION COST DATA

In an address January 7 at Baltimore, Md., before the Association of American Agricultural Colleges and Experiment Stations, Secretary of Agriculture D. F. Houston told of the efforts being made by the department to assure for American farmers accurate figures on the cost of producing the major farm crops.

"For many years," the Secretary said, "I have been deeply interested in farm management, a vital part of the economics of agriculture. I am by no means satisfied with our present plan, and especially with that part of the work of the office (the department's office of farm management) relating to studies of costs of farm crops. The office has done valuable work in a number of directions, but some of the studies of farm costs, especially those made during the war, were unsatisfactory in method, and were highly inadequate in point of interpretation and presentation. I need not enlarge on the difficulty of securing real costs, especially of the staple products produced by millions of people over half a continent under systems of mixed farming. I realize that we can not secure precise cost figures for each unit produced. Averages which will serve as guides are the best we can hope for, but we can at least insist that efforts be made to secure actual reliable data on representative farms, and that these be satisfactorily interpreted. Nothing but the facts will help the farmers or any other class in the Nation. Impressionistic studies are highly likely to be misleading.

"I have already had the situation canvassed by able and impartial committees. I am now invoking the assistance of a number of experts. I shall invite the help of the best and most experienced minds in your body, and shall hope at the proper time to lay before the Congress a carefully considered scheme for an effective office of farm management. I shall hope that full contacts may be established between this office and similar offices in the agricultural colleges, so that in due time we may be able to give more competent advice to the farmers of the Nation in the field of agricultural economics."

COMMON BARBERRY IS "FENCE" FOR THIEF IN WHEAT FIELDS

Harbors and Assists Black Rust in Its Evil Deeds

Destruction of Harmful Plants Helps to Avoid Big Losses From Enemy of Small Grains; Infection Widespread

In the parlance of thieves the party who sells stolen goods is called the "fence." The common barberry is a sort of "fence" in the plant world as it harbors and assists the black or stem rust of wheat, oats, barley, and rye in its nefarious deeds. According to the opinion of the growers of small grains in the spring wheat belt, the fitting punishment for crimes as atrocious as those committed by the barberry is "permanent banishment."

Two years ago the combined wheat crops of North Dakota, South Dakota, Montana, and Minnesota were reduced 200,000,000 bushels because of the prevalence of black rust in those States. One way in which to avoid such losses is to dig up and destroy the common barberry bush. In view of the danger surrounding the growing of barberry bushes as ornamental plants, the United States Department of Agriculture in cooperation with several States, has conducted an extended campaign for their eradication in the grain growing States.

Japanese Barberry Recommended.

The Japanese barberry is more beautiful at all seasons of the year than is the common barberry and, as the former is harmless and not susceptible to rust, its use as an ornamental shrub is recommended. On the other hand, department specialists advise, all common barberry bushes in Montana, Wyoming, Nebraska, South Dakota, North Dakota, Minnesota, Wisconsin, Iowa, Illinois, Indiana, Michigan, and Ohio should be dug out and destroyed at once.

Nurserymen and park boards are urged to continue their battles against the barberry. Instances like that of the Naperville (Illinois) Nurseries which recently destroyed 3,500 barberry bushes at a financial sacrifice are cited as praiseworthy.

The Farmer's Part.

Make field conditions as favorable as possible for the grain crops and as unfavorable as possible for the rust, suggests the Department of Agriculture. Sow grains on high, well-drained land where possible. Sow only on well-prepared seedbeds, as the early maturing crops often escape rust attacks. Do not use an excess of manure, as overfertilization with nitrogen makes weak straw and delays ripening. By the practice of clean cultivation destroy squirrel tail grass, quack grass, slender wheat grass, western wheat grass, and rye grasses, for they spread rust. Plant early maturing, rust-resistant varieties of grain. Specialists from the Department of Agriculture, in cooperation with Minnesota, Iowa, Kansas, and Tennessee agricultural colleges, are experimenting in crossing rust-resistant durum wheat on other resistant varieties famous for their milling and bread-making qualities, in order to develop rust-resistant varieties of satisfactory milling and baking quality.

Infection Widespread.

Minnesota, North Dakota, Colorado, and Nebraska now require that all barberry bushes within their limits be dug up and destroyed. The most recent investigations show that the barberry is spread over 388 counties in 20 States. Wisconsin has it in 67 counties, Minnesota, 59 counties; and in Michigan 55 counties harbor the barberry, while South Dakota and Nebraska each has 36 counties still in bad repute with respect to this grain pest.

In Canada, Manitoba and Saskatchewan have placed the barberry on their noxious plant list. Recently an investigator of the Manitoba agricultural college caught spores from an infected barberry bush at a height of 90 feet and at a distance of 300 feet from the rusted bushes, thus indicating the wide area over which the infection from a few bushes may be disseminated.

If you live in a region where the barberry occurs, you will perform efficient service by doing your utmost to aid in the eradication of this pest. Dig up and destroy completely all the common barberry bushes you see. Urge friends and neighbors to do likewise. In this way you will be aiding in valuable reconstruction work by making the immediate locality more suitable for general farming while increasing the filling for the American bread basket.

THE GIANT'S ANNUAL TOLL OF WHEAT.

To reduce the Loss from Black Stem Rust—200,000,000 bushels of wheat in four States two years ago—is the object of the Barberry Eradication Campaign.

SOUTH MAKES GREAT STRIDES TOWARD GROWING OWN FOOD

War Brings Notable Change in Production Work of Dixieland

Farmers Follow Program Recommended by Department; Less Dependence on Cotton, More Live Stock Is Raised

MORE FOOD IN THE SOUTH.

Before the war the South annually imported about $600,000,000 worth of corn, hay, grains, mixed feed, flour, meat and meat products, dairy products, poultry and poultry products, and canned goods. The emergency work of the United States Department of Agriculture has emphasized intensive home production, with the result that 15 Southern States produced 141,787,000 bushels more corn in 1918 than they harvested in 1909. The 11 States comprising the cotton belt produced 135 per cent more wheat in 1918 than in 1909. These same States during the same period increased their oat crop, 133 per cent; their hay yield, 128 per cent; Irish potatoes, 117 per cent; and sweet potatoes, 67 per cent.

The agricultural South of to-day is as different from the Dixieland of 1910 as the industrious and experienced hands of skilled agricultural workers can make it. A near miracle has been performed. Thousands of acres that were running wild in weeds and filth are now productive of profitable crops of corn, wheat, oats, hay, cotton, tobacco, potatoes, vegetables, and truck crops. Sections that formerly had never exported a carload of cattle, hogs, or sheep are now extensively producers of mutton, beef, pork, wool, and dairy products. Families which formerly lived a drear life of meager existence are now not only enjoying plenty of the staples, but also many of the luxuries of country life.

How was that revolution effected? How was a mirage transformed into an actuality in the Southland? The war presented the opportunity for reformation along agricultural lines due to the unlimited demand on the American food storehouses. The second reason is because the United States Department of Agriculture and the State agricultural colleges, through the medium of 1,539 county agents, located in the 15 States from Texas to Oklahoma and from Florida to Maryland, have been steadily urging farmers to increase crop production, to practice better farming methods, to maintain more live stock, and to produce in the South the majority of what food the South annually consumes, utilizing cotton as the leading surplus cash crop.

Old Practices Changed.

Heretofore the South has been the Eden of the one-mule, one-Negro cotton-farming corporation. The Negro farmers have raised cotton largely to the exclusion of all other money crops. Then they have "about faced" and converted their cotton money into imported beans, bacon, and bread at the local supply stores. In view of this prevalent and traditional practice of buying instead of raising the bulk of food, the United States Department of Agriculture operated under severe handicap when it began food work south of the Mason and Dixon line.

Great credit is given to the county agents, who have not only shown southern farmers in 15 States how to raise and produce vegetables, truck crops, field crops, and meat products, but have been successful in getting the farmers to raise such products on a large scale. Despite the fact that the record price of cotton has operated against the popularity of other crops, the average farmer backed up the food program. Southern farmers and townsmen raised plenty of potatoes, as well as sorghum for sirup, in their home gardens. The farmers increased their production of small grains, corn, hay, peanuts, velvet beans, soy beans, cowpeas, as well as meat, milk, and eggs.

For example, during 1918 Alabama increased its production of potatoes 68 per cent, cotton 30 per cent, hay 12 per cent, oats 8 per cent, hogs 21 per cent, sheep 19 per cent, and sweet potatoes 7 per cent over the yields of 1917.

The South has been a heavy buyer of hay, the majority of her yearly forage coming from the Western States. The services of the southern county agents have increased the local hay production to the extent that Alabama produced 1,293,000 tons of hay during the year 1918 as compared with 166,000 tons in 1909. During the period from 1909 to 1918 Georgia increased hay production 426 per cent; North Carolina, 183 per cent; Florida, 362 per cent; and South Carolina, 253 per cent. According to recent crop estimates the hypothetical value of the farm crops of Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina amounted to $839,213,000 in 1909 and $2,106,396,000 in 1917, an increase of 250 per cent.

Gains in Live Stock.

It is only logical that as the production of corn and hay increases in the Southern States, the number of hogs and cattle raised and kept show corresponding gains. The razor-back hog has been traditional of the South since the Civil War, but of late years these native rustiers have been replaced by well-finished porkers of desirable conformation and breeding which are more economical in the manufacture of pork under southern conditions than are the grain-fed hogs of the corn belt in that Middle Western territory.

According to recent estimates by the Bureau of Crop Estimates, there are 65,066,000 hogs in the United States, of which 29,651,000 animals, or 45.5 per cent, are on farms in the six corn-belt States of Iowa, Illinois, Nebraska, Missouri, Indiana, and Ohio, while 21,756,000 porkers, or 33.4 per cent, are located in the 15 Southern States, and the remaining 21.1 per cent are distributed over the remaining 27 States of the Union. Under present conditions the South ranks second only to the corn belt as the leading pork-producing section of the country. The remarkable fact about the growth of the hog business in the cotton States is that it has developed rapidly during the last five years as a direct result of the untiring efforts of county agents to popularize pork production. Climatically the South is the ideal live-stock section of this country, and present indications are that it is en route to come into its own.

Some Notable Hog Shipments.

Indicative of the rapid rise of the pork industry, 17 counties of southern Alabama, although they did not ship to market a single carload of hogs during the year 1912–13, marketed 2,352 carloads of hogs during the period from April 1, 1917, to April 1, 1918. Mississippi exported 7,244 hogs in 1914, while in 1917 she disposed of 88,730 fat porkers, an increase of 1,224 per cent. For the most part, the southern hogs are developed inexpensively, on such forage crops as soy beans, peanuts, cowpeas, chufas, potatoes, native grasses, and clover, while corn is used as a finish feed to firm, compact, and "bloom" the flesh to the desirable market quality.

The hog supply has developed with the increase in corn production. In 1909 North Carolina raised 34,000,000 bushels of corn, while in 1918 it harvested 64,365,000 bushels and fattened 1,599,000 hogs. Georgia produced approximately 29,475,000 bushels more corn in 1918 than in 1909, and during 1918 handled 2,507,000 hogs. Similarly in the case of the other Southern States, increased yields of corn and pork have been intimately related, while the exigencies of war-time production have speeded up the farmers and,

largely in accord with high market values, have expedited pork manufacture. Similarly, as a result of greater hay production, more cattle have been kept in the South. In 1914 Mississippi marketed only 86,229 fat cattle, while in 1916 it shipped 156,237 animals to the St. Louis market, an increase of 181 per cent. During 1915 Mississippi farmers sold 6,850 head of sheep in St. Louis, while in 1917 they shipped 15,917 sheep to the same market, an increase of 232 per cent.

More Food Saved.

Reports show 1,470,408 women actively engaged in regular and emergency war work in the Southern States during 1917, while 980,272 girls assisted along similar lines; a total of 2,606,213 women and girls worked to help win the war by gardening, poultry production, canning and drying fruits, vegetables, and meats, butter making, and cheese making. Their achievements are partially pictured in 200,000,000 cans of fruits and vegetables now awaiting consumption in southern storerooms and pantries. Impartial opinion states that during the last 12 months the Southern States have canned and preserved 500 per cent more fruits and vegetables than in any similar period in the last half century.

The 62,227 women enrolled in 3,812 southern clubs recently have put up 34,993,677 cans of vegetables and fruits worth over $7,000,000. In addition they have prepared over 2,750 tons of dried fruits and vegetables and brined, pickled, and stored 500 additional tons of vegetables. The 73,306 southern girls engaged in regular club work raised and canned 8,882,000 cans of vegetables worth $1,500,000, as well as canning an additional 3,961,000 containers of fruits and vegetables which they did not raise themselves.

Boys' Clubs Much Larger.

Boys' club work has also developed on an amazing scale because of the persevering and conscientious work of the county agents. During 1917 the enrollment of boys with respect to the branch of farming was as follows: Corn, 40,394; pigs, 31,375; poultry, 11,633; cotton, 5,297; miscellaneous, 4,087; potatoes, 3,441; peanuts, 3,157; and grain sorghums, 2,126. These numbers were greatly increased during 1918, while an a ditional 400,000 boys aided in emergency work. The average yield of corn of the boys' clubs was 47.97 bushels per acre. Thousands of pure-bred pigs have been distributed among the pig-club members. The boys' club work is stimulating the attendance of farm boys at agricultural colleges. In one Southern State, during 1917, 218 club boys entered the State agricultural college.

Under the supervision of the southern county agents, 303,723 adult farmers conducted farming demonstrations in 1917—the 1918 figures are not yet available—on 501,729 acres of corn, 156,660 acres of wheat, 68,769 acres of rye, 77,597 acres of soy beans, 540,448 acres if velvet beans, 44,526 acres of alfalfa, 100,505 acres peanuts, 14,809 acres Irish potatoes, 11,178 acres sweet potatoes, and 364,741 acres of miscellaneous forage crops for hay and soil improvement purposes.

Other Work of Agents.

Approximately 636,000 fruit trees in southern farm orchards are yielding more fruit of better quality as the result of intensive spraying and pruning demonstrations conducted by the county agents. The county agents also had charge of feeding demonstrations with 18,598 head of beef cattle as well as 30,041 hogs. In addition they assisted in the importation of 58,007 beef cattle for breeding purposes, while they aided in building 2,256 dipping vats and 5,517 silos. They instructed 56,031 farmers how to care for farm manure; they conducted 25,068 lime demonstrations; they advised 156,804 farmers concerning the use if commercial fertilizer; they furnished building plans for 3,028 farm buildings; they installed 1,753 home water systems; they supervised 28,812 tiling demonstrations and 20,439 terracing demonstrations, and directed 315,654 home gardens. Southern county agents visited 885,966 farms and received 765,207 callers at their offices or homes. They delivered addresses at 78,996 meetings attended by 3,880,403 people.

Producers of alfalfa seed in the United States received $8.30 a bushel November 15, 1916, $9.43 a year later, and $9.38 November 15, 1918. After the harvest of 1916 the price considerably declined, but an upward movement followed February, 1917, when the price received by producers was as low as $7.75, and by March, 1918, it reached the high price of $10.60 a bushel. In Kansas, the November, 1918, price was $7.90.

Dairy Division Points Out Eighteen Ways of Saving Milk and Money in Plants

In a letter sent early in January to milk plants of the United States, dairy specialists of the United States Department of Agriculture give specific directions for reducing losses which are believed to be unnecessarily large. A quart of milk wasted now is about twice the loss it was a few years ago, and the financial loss, though great, is even less serious than the waste of this essential food. In addition the department calls attention to numerous means for saving fuel and labor. The following are the principal recommendations to managers and employees of market milk establishments:

To Prevent Milk Waste.

Keep the shrinkage as low as possible by close attention to leaks, spillage, and slopping.

Avoid milk piping as much as possible since considerable milk will stick to pipes at the end of the run.

Have milk vats set so that they can be drained readily.

Drain cans and all containers well after dumping the milk.

To Save Fuel and Ice.

Utilize exhaust steam wherever possible for heating the building and providing hot water for various dairy operations.

Avoid extra steam piping by proper arrangement of rooms, thus avoiding losses due to condensation of steam.

Keep steam valves and joints well packed.

Keep doors of refrigerator room closed. Do not work in refrigerator more than necessary and do not leave lights on.

To Save Labor.

Avoid use of milk pumps wherever possible by adopting the gravity-flow system. Extra labor is required for cleaning pumps.

Avoid unnecessary labor by convenient arrangement of equipment and rooms and through use of labor-saving devices.

Other points which deal principally with mechanical topics are included in the recommendation, all of which have a sound basis of investigation and experience. By issuing a monthly letter on timely matters to the milk trade, the Dairy Division seeks to raise the plane of milk-handling efficiency. It makes official information available to those who are able to put it into immediate use and should assist in reducing operating costs as well as waste of dairy products.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Hog Auction Sales Profitable.

Hogs valued at $100,000 were sold at 11 fat-hog auction sales in November by the California Farm Bureau Marketing Association, which comprises the marketing departments of the farm bureaus in King, Tulare, and Kern Counties. The prices received are described as more than satisfactory, being much better than those paid by local buyers. The auction sales also have taught the hog raisers the importance of raising better hogs, as they have seen that packers discriminate between hogs fattened on grain and those raised on skimmed milk and alfalfa pasture alone.

Farmers Reached Through Organization.

Organized as Daviess County, Ky., is by farmers' clubs in every community, 800 farmers are reached directly by the agricultural-extension service, represented in the county by the county agent. These farmers are those who take an active part in the farm-development work of the county, many others being reached by the outside activities of the clubs. For example, when the seed-corn campaign was waged last spring, at a time when no one knew whether seed corn would grow or not, for the winter had been severe, 1,875 of the 2,200 farmers of the county were reached. In every patriotic activity of the year the farm clubs have been the means of putting over the top the particular piece of work at hand. When men of agricultural experience have been in the county it has been possible through the farmers' clubs to get the facts these men have had to present to the most of the farmers in the shortest time. Plans for the coming year are extensive and will be developed through the farmers' clubs.

Merchants Study Farming Problems.

Retail merchants by getting in close touch with the farmer and studying his problems can help themselves as well as the farmer. This belief was acted on by the Wisconsin Retail Lumber Dealers' Association in a recent conference with Wisconsin agricultural-extension workers, as a feature of which members of the association heard talks and saw demonstrations of better farming methods. The decision of the association to give informed service as well as to sell lumber to farmers is said to have been the first united step ever taken in the direction of bringing retailers and farmers together.

Forest Rangers Meet County Agents.

Forest rangers of Arkansas and county agents interested in any of the counties touching the Arkansas national forests have set themselves to a form of cooperation which ought to increase the effectiveness of the educational work being done in the mountains. Both men are representatives of the United States Department of Agriculture, but have been working separately. Now the ranger will assist the county agent in conducting farm demonstrations and will make his own farm on the ranger station a demonstration farm. The county agent in turn will keep the ranger informed of matters affecting the forests, about which the ranger might not otherwise learn. Both men have so large a territory to cover that this cooperation will mean much to both lines of work. Where the county has a home-demonstration agent she will cooperate with the wife of the ranger in canning, drying, and other lines of home-demonstration activity.

More Meat Inspected.

Additional tasks performed under war conditions by the meat-inspection service of the United States Department of Agriculture are indicated by increases in the number of animals slaughtered under Federal supervision. In October, 1918, the cattle, calves, sheep, goats, and swine thus inspected numbered 5,787,202, in comparison with 4,587,544 in October, 1917. The number for the 10 months ending October, 1918, was 50,769,507, and for the 10 months ending October, 1917, it was 45,936,883.

How One County Fought Rodents.

More than 50,000 acres of farm land badly infested by prairie dogs was a condition that the Huerfano County (Colo.) Farm Bureau started out to change. With the cooperation of all agencies it is estimated that crops worth $38,085 were saved during the 1918 season. From 85 to 97 per cent of the pests were killed on the areas treated. Poisoned grain was placed on 50,780 privately owned acres by 300 cooperators at a cost of $854.20, and 11,130 acres of public lands were treated with poisoned grain by individuals who killed 90 per cent of the dogs and saved crop and range pasturage valued at $2,782. A cooperative field party treated 27,225 acres of public lands, using 9,040 quarts of poisoned grain, killing 95 per cent of the dogs and saving crop and range valued at $6,806.

Farmers Order Lime by the Carload.

The Licking County (Ohio) Farm Bureau ordered 17 carloads of lime this year and limed 400 acres of land. Six new lime spreaders were placed in communities which had never had them. Sixty men, a large majority of whom had never used lime, secured lime through the bureau. The county agent in August made 45 tests in different parts of the county, 39 of which showed the need of lime. Immediate steps were taken to hold meetings to inform the farmers as to lime needs, where it could be secured, price, and how and when to apply it.

Potato Spraying Paid Farm Bureau.

The Coos County (N. H.) Farm Bureau saved $55.38 per acre for the potato growers through a careful spraying project, which included 80 acres on which check plots were left and 100 acres where no check plots were left. The greatest gain was 91 per cent, a yield of 214 bushels per acre as against 112 bushels on the unsprayed area. The next highest gain was 45 per cent, a yield of 173 bushels on the sprayed area as against 119 bushels on the unsprayed part. Fields were sprayed three times on the average, at the cost of $1.50 an acre for each application.

Buying Together Saves $4,500.

A farmers' supply association, organized by the farm bureau of Crawford County, Ohio, saved $4,500 to farmers on a business last year of $49,500. The association has a capital stock of $10,000, divided into 1,000 shares of $10 each, one share to a man.

Buys Acid Phosphate for Farmers.

While local dealers were forced to buy mixed goods, 12 cars of straight

acid phosphate were obtained by the Williams County (Ohio) Farm Bureau for its members. When it became apparent that farmers in many parts of the county were unable to get acid phosphate from their local dealers, the farm bureau investigated and learned that the fertilizer could be obtained in straight cars. A buying committee was appointed and the work was carried out so successfully that the farm bureau has been requested to order cars for use this coming spring. The farmers saved $800 by buying through the farm bureau, and 80 new members were obtained.

Extra-Staple Type Cotton in Southwest.

About 250,000 acres of cotton were grown in the irrigated districts of California and Arizona during 1918, 181,000 acres having been planted in California and 87,000 acres in Arizona. The prospects of a permanent cotton industry in these States, specialists of the United States Department of Agriculture say, appear to lie definitely in the direction of the Egyptian or other special extra-staple types, which are not reliable crops in the South Atlantic or Gulf States, but are well adapted to the drier climate and irrigated lands. The extra-staple types produce cotton of high quality for which an increasing demand is expected in many lines of industry.

Show How to Grow More Corn.

The Clermont County (Ohio) Farm Bureau, through the county agent, last year demonstrated how the yield of corn could be increased by using manure and acid phosphate and by liming. On a total of 75 acres of corn 22 farmers produced an average increase of 10 bushels an acre by broadcasting 8 loads of barnyard manure and 200 pounds of acid phosphate an acre. From a group of fields on which 3 carloads of ground limestone were used the yield was increased an average of 5 per cent. Two lime pulvers were purchased and last spring one farmer ground 200 tons and another 100 tons of stone from their farms.

Canning a Beef Yearling in 10 Hours.

From the hoof to the can in 10 hours. That is the transformation through which a beef yearling went in a demonstration conducted by the home demonstration agent in Montgomery County, Tex. The yearling was killed in the morning while the agent was getting the canners ready, sterilizing the jars, and preparing the pots for cooking. The meat was cut from the bones in neat, convenient sizes, and that which was to be served as roast beef was dredged in flour and cooked in wash pots of hot grease until brown. The steak was cut in small pieces, cooked in the wash boiler, packed in the cans, and covered with gravy. While these were sterilizing in another pot, all the bones were boiled and after these were cooked the meat was removed from the bones and ground through a food chopper for hash, loaf, or croquette meat. To the beef stock was added what vegetables were on hand and all excess fat, and this was canned for soup. In the meantime the liver, heart, and tripe had been cooked and was speedily placed in tins. Three canners heated by coal furnaces were used, and by night the entire beef was in cans for future use.

Developing Better Home-Grown Bulbs.

To determine the practicability of successfully growing flowering bulbs and to do the work at a cost which will enable the industry to thrive in this country in competition with imported stock of similar character, experiments are being undertaken by the United States Department of Agriculture at a bulb farm which it maintains at Bellingham, Wash. Besides the work at Bellingham, some species are tested at two points in California. At the Bellingham Station, from 5 to 7 acres are annually devoted to bulb growing, and so far several species of commercial bulbs have responded so well that the stock produced has proved superior to the imported stock of the same species. In the fall of 1917 a carload of bulbs grown at the Bellingham gardens was shipped east and constituted the supply of this class of bulbs used in the congressional seed distribution. This car of bulbs was the first full carload of domestic grown bulbs ever shipped across the continent. Last fall another full carload of similar stock was sent East for the same purpose.

New Crops for California.

Special crops are needed for conditions near the coast of California and in the mountain districts, where the weather remains cool at all seasons and many crops fail to grow or to reach normal maturity, and the United States Department of Agriculture is conducting experiments with a number of plants, many of which have been imported for this purpose. Of special interest attaches to the possibility of securing varieties of potatoes and other root crops from the high table lands of South America, which are able to grow under conditions of low temperature. Numerous other food crops, fruits, and useful trees that grow successfully in the cooler mountain regions of South America are being studied to determine their possibilities of use in California. Among these are varieties of Indian corn from the cool table lands of Peru, including the remarkable large-seeded Cuzco type of maize.

Forest Range Discussion Planned for Wool Meeting, Now Postponed

On account of the influenza situation it the West and the consequent prospect of small attendance at the National Wool Growers' Convention Department of Agriculture officials have been informed by those in charge that the meetings are indefinitely postponed. The convention was to have been held at Salt Lake City January 16 to 18.

Several officials of the department were scheduled to appear before the convention to discuss questions of interest to the sheep growers, involving the work of the department. One of these questions concerns the situation on the national forest ranges, due to the increases which were made as a war emergency measure in the number of live stock admitted. Forest Service officials are pointing out that, on account of the danger of overgrazing, many of the sheep can be continued only if a high standard of management can be maintained by the owners. Inexperienced herders, due to the shortage of labor, have handled the stock so unsatisfactorily that both the carrying power of the ranges and water-flow conditions are threatened with injury. The question turns on the ability of the herders to carry out successfully the instructions and suggestions of the forest officers regarding the methods of managing their bands.

Another matter of interest to the sheep growers is the increase in the national forest grazing fees which goes into effect this year. This increase, which applies the principle of charging for the use of national-forest ranges on the basis of their actual value, will raise the annual receipts from cattle and sheep grazing on the forests by approximately $800,000. Decision to raise the fees was originally made in 1916, and the 1917 fees were advanced 25 per cent as a first step, but on account of the difficulties and uncertainties created by the war and the necessity for stimulating production as a war measure the further advances then announced were temporarily postponed.

SEES U. S. AGRICULTURE SOLID AS WORLD ENTERS PEACE ERA

(*Continued from page 1.*)

practice in reference to the backward territories of the world."

Help for New Farmers.

Every possible assistance, said Mr. Houston, will be given to returning soldiers and others who may wish to begin life anew in the difficult business of farming.

"In truth, a very special duty will devolve upon agricultural establishments to see that the most effective aid is rendered to such beginners. Farming is a difficult business; and it will be no kindness to any man without knowledge and experience to encourage him to enter it. We shall give our support to any well-considered plans to promote more orderly land settlement. Of course there is room for more farmers in this country, but only for as many as are necessary to produce a volume of products which the public will take at remunerative prices. Farming must pay, and only as it pays will people enter it or remain in it. This is a truth often lost sight of, especially by urban peoples, and it is time for them to be enlightened. Poor farming, of course, will not pay. And our responsibility in this direction is to omit nothing to improve processes and to remove burdens imposed by waste, by animal disease, and by unsatisfactory marketing conditions."

The Secretary spoke in favor of hastening the process from tenancy to farm ownership; the improvement of rural finance; establishment of State systems of personal-credit unions; immediate resumption of road construction under the Federal aid road act; proper regulation of the stockyards and packing houses; reduction of diseases and provision of adequate medical facilities in rural communities; continuation of the enlarged activities of the agricultural extension forces, the Department of Agriculture's farm-labor work and its enlarged market news services; Federal and State cooperation to assure reliable information on the cost of farm production; and legislation to enable State departments of agriculture to cooperate with the Federal department in regulatory activities in the same way that the agricultural colleges are now able to cooperate in research and experimental work.

The up-to-date orchardist will know just what each spray application is intended to do and will realize the importance of spraying at the proper time and in the proper way.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

Assistant Secretary of Agriculture, CARL VROOMAN.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, G. I. CHRISTIE.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, R. L. ADAMS, *Acting Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief.*
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief.*
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief.*
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief.*
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief.*
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, ——— ———, *Director.*
Studies and supplies information regarding road making, road management; road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Brand, as chief of the Bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licensees operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, E. B. REID, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JANUARY 29, 1919 No. 26

American Farming Has Sure Place, Says Department in 1919 Forecast

Foreign Demand for Food Products Likely to Continue—New Markets Opened

Live Stock Needed on More Farms, With More Feed for Meat Animals — World Situation

There is no cause for alarm as to the future ability of the United States to hold its due place in the trade of the world, and especially as to the ability of American agriculture to maintain its position in the world readjustment that must follow the ending of the war. This is the judgment of the United States Department of Agriculture, expressed in a statement issued to-day from the Office of the Secretary.

A detailed survey of the agricultural situation shows the impossibility of forecasting the conditions that will obtain when the 1919 crops are matured, but it is pointed out that the markets of the world are opening up for American products and that a considerable demand from European countries for foodstuffs is almost assured for a year or more.

The signing of the armistice, the Department of Agriculture points out, found the United States with fairly large stocks of foods, but with smaller than usual stocks of feeds. In response to increased needs for food, many farmers plowed up permanent pastures and other grass lands needed for live stock and planted them to grain crops, while others broke their rotation systems and planted the same land to grain several years in succession, thus reducing the fertility.

Would Increase Live Stock.

Now that farming is to be restored to a peace-time basis, the Department of Agriculture thinks that many of the lands suitable for meadow or pasture should be reseeded to grass, that regular and satisfactory rotations of crops should be established, and that live stock should find a place on a larger number of farms. These readjustments appear to be necessary in order to meet the still urgent demand for meats and fats, as well as to restore sound farm practice.

A wise live-stock program, the department concludes after reviewing all conditions, will involve maintaining the number of horses and mules without material increase, a normal increase in the number of dairy cows and dairy products, a normal increase in the number of beef cattle, a conservative policy with respect to increasing the number of swine until the relative shortage and high price of feeds is overcome, an increase in sheep consistent with facilities for feeding and pasturage and the farmer's skill in handling them, and an increase in farm flocks of poultry where a minimum of purchased feed is required.

Many Factors Affect Wheat.

The indicated plant program is not quite so definite. The proper policy as to wheat depends upon a complicated set of conditions, but it seems certain that the farmers of the United States will be justified in maintaining their acreages of corn, oats, and barley, large productions of which are necessary to maintain normal live-stock production.

It appears desirable to increase the production of hay by about 25 per cent. The cotton situation depends largely upon the ability of the European countries to buy in average prewar quantities, but the practice recommended is for the individual farmer to adjust his cotton acreage so as to have sufficient land available to produce enough food and feed for his family and live stock. An average acreage of potatoes is justified. Peanut pro-

(Continued on page 13.)

WOULD CONTINUE EXTENSION WORK DEVELOPED DURING WAR

Secretary Praises Agricultural Education; Wants Advantages Retained

Supplemental Estimates of Funds Needed to Keep Organization Active Transmitted for Consideration of Congress

The Secretary of Agriculture, in a letter to the Secretary of the Treasury, transmitting a supplemental estimate of $5,670,000, in lieu of two items aggregating $1,204,940, now carried in the regular appropriation act, for agricultural extension work in the several States during the fiscal year 1920, outlined the situation and emphasized the importance of making provision for the continuation of the emergency activities, in part at least, as follows:

Aside from the amounts accruing under the agricultural extension act of May 8, 1914, the agricultural appropriation act for 1919, and the estimate for 1920, which are now under consideration by the Congress, include the sum of $1,204,940 for the conduct of agricultural extension work in cooperation with the agricultural colleges of the various States. The food-production act of November 21, 1918, carries an additional appropriation of $6,100,000, making a total of $7,304,940 for the current fiscal year. The supplemental estimate, which has been prepared after very thorough consideration of the whole matter and consultation with the representatives of the agricultural colleges suggests a total appropriation for 1920 in addition to the amounts provided by the agricultural extension act of $5,670,000, a reduction of $1,634,940 below the amount available for cooperative extension work in 1919.

Purpose of Extension Act.

The agricultural extension act, passed three months before the outbreak of the European war, contemplated the gradual development throughout the country of

Little Business in Agriculture—See How It's Growing into the Big Industry of To-morrow—Page 8

97354°—19——1

a system of practical instruction in agriculture and home economics. It involved the location in the several counties of agricultural agents and home demonstration agents who, through close contact with the people and intimate relations with the agricultural colleges, experiment stations and this department, would be able to acquaint themselves thoroughly with the needs of the rural communities and carry to the farmers and their families, on their own farms, the latest and best practical and scientific information regarding the agricultural problems confronting them. It involved also demonstration work among boys and girls, and the assignment of specialists in the various branches of agriculture and home economics, whose headquarters would ordinarily be at the agricultural colleges or the department, to supplement the activities of the extension agents.

"A Mistake to Dismantle."

All the States promptly accepted the provisions of this act, and the work under it proceeded rapidly. When the United States entered the war, this great educational system was well established and had met with great favor in all sections of the Union. It was immediately recognized that it could be used as a very effective means for giving concrete aid to the farmers of the Nation in increasing the production of food, feeds, and live stock to meet the needs of the United States and of the nations associated with it in the war, as well as in carrying out the program of food conservation. The Congress, therefore, made provision in the food production act for speeding up the development of the system. This has been done to such an extent that county agricultural agents are now employed in approximately 2,400 counties and home demonstration agents are working in about 1,400. These agents, together with boys and girls club leaders, extension specialists, and administrative officers, constitute a force of over 6,000 persons engaged in demonstration and extension work. During the intensive campaigns for food production and conservation conducted under the severe war stress of the first half of 1919, approximately 1,000 additional workers were appointed as assistant county agents and specialists. These have since been withdrawn, so that the force now employed may be said to represent, in considerable measure, the development, somewhat earlier than originally anticipated, of the extension work as defined in and contemplated by the act of May 8, 1914. The expenses of living, travel, supplies, and the like, normally connected with such work have greatly increased since the passage of the act. The funds provided by it, therefore, are entirely insufficient for the maintenance throughout the country of such an extension system as the act had in view. Now that the work has been effectively organized and developed as a war measure, it seems to me that it would be highly desirable and wise to anticipate the funds that would accrue under the act by 1922 and to make adequate provisions for the continuance of the agents of proved efficiency already on the rolls. It would be a serious mistake, in my opinion, to dismantle this great organization and then build it up again through a series of years.

For the fiscal year 1919 the Federal appropriation under the extension act is $2,580,000, which, combined with the required offset from State sources of $2,100,000, makes a total of $4,680,000. The States have, in addition, contributed nearly $4,000,000, and the regular and emergency appropriations to this department, as already indicated, amount to $7,304,940. In all, there is available for extension work this year about $16,000,000. To continue the work on its present basis the following sums will be required:

Agricultural extension act:	
Federal	$3,080,000
State	2,600,000
Additional:	
Federal	5,670,000
State	4,650,000
Total	16,000,000

Proposes to Extend Work.

If the appropriation suggested in the supplemental estimate is made available, it is proposed, first, to provide for the maintenance of county agents in at least 2,400 counties and to extend the work to such other counties as the funds accruing from State sources may permit; second, to maintain the present force of home demonstration agents; and, third, to use the remainder of the appropriation for

(Continued on page 23.)

Highest Farm Wages In Half Century Paid in 1918; Pay Doubled in 16 Years

Wages for farm labor in the United States have more than doubled since 1902 and have increased 43 to 64 per cent for the different classes of hirings since 1916, or 53 per cent for farm labor in general. These comparisons are warranted by the results of a recent investigation made by the Bureau of Crop Estimates, United States Department of Agriculture.

For 1918 the wage rate per month with board was $34.92, without board $47.07; per day in harvest with board $2.65, without board $3.22; per day out of harvest with board $2.07, without board $2.63. These are averages for the United States. The highest rates were in the far West, and next below are those of the west North Central States. The wage rates of the South Atlantic States were lowest and were a little below those of the South Central States, as State-group averages. A record of 53 years of farm wages places 1918 at the top, and far above the highest rates of the half century before 1916. Wage earnings measured by purchasing power may warrant a different statement.

While the wages of farm labor have greatly increased in only two years and have doubled in 16 years, it is interesting to observe that from the time of low-water mark in farm wages, 25 years ago in the great industrial depression of 1893–1897, the rates have increased from 165 to 229 per cent for the different classes of hirings.

Day wages on farms increased in greater degree than month wages did during the last two years, and this is true for the last 16 years except for month wages with board. Wages by the day for work outside of harvest have advanced more strongly than for harvest work. Apparently the procurement of month labor is less of a problem to the farmer than the finding of day labor, especially for work outside of harvest.

BETTER BE SAFE THAN SORRY.

A good rule generally; and especially applicable to the ice crop. If you've been waiting for a harder freeze before cutting ice, you had better consider whether it wouldn't be wiser to cut now, even if the ice is not quite as thick as you'd like. Lots of people went without ice last summer just because they kept putting off the harvest until it was too late. Don't you be caught that way. The people who get ahead are the ones who plan ahead. Four-inch cakes of ice in the ice house are better than six-inch cakes that never freeze. Study your local conditions and and don't wait too long.

And don't skimp. Put up plenty of ice for farm purposes and have enough for family use. One to two tons of ice per cow is a good allowance. But have too much rather than too little.

STATE COOPERATION NEEDED TO PREVENT PATERNALISM

Assistant Secretary Ousley Warns Against Farmers Losing Self-Dependence

No Overproduction Nor Plentiful Cheap Labor Likely Soon, He Says; Evils of Guaranteed Prices Pointed Out

The immediate future holds no likelihood of either an overproduction of farm products or of plentiful farm labor at low prices, Clarence Ousley, Assistant Secretary of Agriculture, said in an address before the recent meeting in Baltimore of State extension directors.

Mr. Ousley impressed the necessity of State cooperation with the Department of Agriculture in order that Federal patronage without corresponding State and local sustenance may uot usurp the field. He declared also that farmers should look no longer to the Federal Government for the continuing exercise of extraordinary powers in behalf of agriculture or any other element.

"The farmer," said Mr. Ousley, "should be the last man to surrender his personal rights of property, as they are represented in the price of his commodities, to the control of Government, for there are more cousumers than producers and Government reflects the selfish interest of the majority."

He spoke against guaranteed prices for farm products as a permanent policy because "we would come to a wholly artificial system that would break down with a mighty crash." Agriculture, he said, will still be subject to the normal and universal ecomomic loss that the war has not changed.

Big Part in War Winning.

"The extension problems of the war consisted chiefly in speeding up the customary processes of agricultural production in order to supply the larger volume of food and feed needed to overcome the decreased production of the countries longest in the war and the waste of the war itself. I need hardly relate to this group the methods employed by the Government through the Department of Agriculture and the agricultural colleges," said Mr. Ousley. "You are familiar with the facts. You know how the extension forces were expanded and you know how the increased production was obtained. The results were highly gratifying and are creditable alike to the farmers and the extension forces. They could not have been obtained without the extension forces because in no other way could the necessities of the Nation have been brought so intimately to the knowledge of the farmers, and they could not have been obtained without the most generous and self-sacrificing labors of the farmers.

A Loss to Go Back.

"For us in the extension work the question arises how we may make the most of the extension development which was effected under stress of war. We are considerably in advance of the progress we could reasonabley have hoped to make under peace conditions. It will be a great economic loss to agriculture if we slip back to the prewar status.

"What shall be done immediately through legislation and appropriations for the next fiscal year is a matter to be determined by the Congress upon the advice of the Department of Agriculture and its partners, the agricultural colleges. I have the confident hope that provision will be made for maintaining such of the iucreased extension forces as should be maintained on the basis of efficiency and local support. I take it that in some places we have used men in the emergency who do not measure up to the highest standards. They served for the occasion, but they will not serve acceptably, I anticipate, under peace conditions. It will be well for us carefully to consider to what extent our war organization should be preserved as a peace organization. Certainly we should weed out the inefficients, if there are auy such, and I think we will make a mistake if we undertake to sustain the expanded work altogether by Federal appropriations. I fear any system of governmental aid which is altogether one-sided and which does not reasonably provide for cooperative support, Federal, State, and local. A thing which is not worth paying something for is not appreciated and will not be utilized to the fullest extent. Federal patronage without corresponding State and local sustenance becomes paternalistic and is likely to lead either to governmental presumption or lack of local self-dependence, or both.

"In all good humor and without intending to be hypercritical, I record objection to the phrasing of the topic of the afternoon, 'Extension problems of the war and of the reconstruction.' I object to the word 'reconstruction.' It implies previous destruction or serious injury. There has been no destruction or serious injury to American agriculture. It has suffered somewhat in its processes during the war because the point has been to produce, at more or less expense of proper processes of rotation and soil maintenance. In a slight degree, therefore, American agriculture may need restoration, but in no sense can it be fairly said to be the subject of reconstruction.

"I think our first need is to get back to the basis of economic and safe farming—economic from the standpoint of the farm establishment, its equipment, and its soil, and safe from the standpoint of operation for profit under normal conditions and in the face of the risks of weather and markets. As to some of our products during the war there were guarantees of price, regulations, aud other governmental activities aud powers exercised in the national defense. With the passing of the war these activities and powers pass. With the exception of the settlement at the guaranteed price for wheat harvested in 1919, farm products hereafter are to be depeudent wholly upon the ratio of supply to demand and upon the ordinary influeuces which affect commodities of trade, and the best service that can be rendered to the American farmer in this situation is to help him to adjust his business to the conditions that exist and are in prospect. It is most difficult now to foresee what the demand for farm products will be when the harvests of 1919 are gathered. I think there never was a time when farmers ought to study more carefully the foreign news of the day. They have a profound interest in the political, economic, and social developments in Europe, because upon these developments will depend the ability of the European countries both to produce and to buy. Upon what they may be able to produce in 1919 and upon what they may be able to buy from the crop of 1919 depends the prosperity of the American farmer.

No Overproduction Likely.

"Generally speaking, as the Secretary of Agriculture has informed us, and as the agricultural commissioners to Europe confirmed, there is assured prospect that Europe will need continuing large American supplies of live-stock products. It appears reasonable, also, to assume that Europe can not, within the year or within the producing part of the year, restore prewar farming operations. From the present supplies of wheat in the world now released, or about to be released by the freedom of shipping, and from the prospects of our winter wheat, allowing for the average production of spring wheat, there appears to be in storage and in sight all the bread grain that the world will require. The prospect most likely would cause a sharp decline in prices, as its realization will in the world's markets, but the American wheat growers' price will remain at the war level because of the Government's guaranty. As to other cereals and other crops generally it does not seem to me that over-productions is at all likely, because the world has lost more than 10,000,000 slain in war and many millions more hopelessly crippled. Its man power is greatly depleted and

there will be continuing demand for much labor for the reconstruction of the waste places.

"While there is no possible way of determining with any degree of accuracy how soon the disordered countries of Europe will compose themselves, my personal guess is that the central nations will come to order to a sufficient extent to increase their production of last year, but not to the point of prewar production, and to purchase what they need of our supplies, principally of live-stock products.

"In our country we may suffer some inconvenience by the dislocations of labor in the shift from war industries to peace industries, but I can see no likelihood of a labor surplus in the near future. We have received no immigration to speak of for four years, nor will we receive any to speak of this year, nor, I imagine, for several years to come. Much construction of various kinds has been delayed on account of the war and now needs to be resumed. While our soldiers on this side are being demobilized rapidly, one or two millions on the other side will remain there for the greater part of the year.

Sees No Excess of Labor.

"These facts, it seems to me, warrant two expectations—one is that there is not likely to be excess production on the whole and the other is that the farmer is not likely to have plentiful labor at low wages. The wise farmer, therefore, will plant as largely as he can reasonably hope to cultivate well, but will not plant beyond a reasonable calculation as to the probable supply of labor.

"However that may be, we have a problem of distribution here in the bald fact that notwithstanding the progress we have made in marketing, it still costs from 30 to 60 per cent of the consumer's price to get even the staple products from the farm to the table, and under frequent conditions it costs more in handling perishable products. This cost, some of which is waste effort and some of which is commercial exploitation, is little short of scandalous. Marketing seems to me to be the immediate outstanding problem.

"Next to marketing is personal credit. I think a thorough investigation will show that farmers as a class pay their debts as well as, if not, indeed, a little better than, any other class of purchasers. Yet, as a rule, farmers pay a higher rate of interest for operating credit and have greater difficulty in obtaining credit than merchants or others. This is due in part to the fact that the farmer perhaps does not pay so promptly because his ability to pay depends upon both the seasons and the markets. The average farmer pays in the long run; he rarely ever takes advantage of the bankruptcy laws, but it is promptness in paying as well as the ability to pay that secures ample credit and cheap credit.

Must Actually Work Together.

"To these ends, that is, marketing and credit, the necessary agency of success or relief is cooperation. We have spent a great deal of time, and not without reason or without results, in securing legislation permitting cooperation, and no doubt something more remains to be done both by the Federal Government and the State governments, but after all the way to cooperate is to cooperate. However complete and perfect the statutes of accommodation may be, there can be no effective cooperation unless farmers work together in the spirit of cooperation. The best way to develop that spirit is to make beginnings in small groups for simple transactions. There is hardly a neighborhood in the United States in which there are not abundant opportunities for cooperative action, but simply to state the facts or to exploit the beauties of cooperation, or to exhibit the waste of individual action is to get nowhere. The thing to do is to get a group of farmers together, whether a half dozen or a hundred, and persuade them actually and practically to market their potatoes or their cotton or their apples cooperatively, and to recognize the standards of classification and pack, or to act cooperatively in securing operating credit by some form of limited mutual liability or group insurance. There are examples in plenty of farmers lacking individual credit who have joined together and obtained reasonable credit by each entering into an obligation to pay as much as 10 per cent above his own loan as insurance for the loans of all. By a process of selecting, within the group and by the group, trustworthy men and rejecting the untrustworthy, this method will succeed anywhere, for the sources of credit in any community are not so concentrated or monopolistic but that some man will be found with the intelligence to recognize the safety of a group risk. Successful farming, like successful merchandising, or successful manufacturing, is a matter not of Government policy but of intelligence and industry, for as to nearly all that might be done by the Government cooperative group action is as potential in effect and is much wiser in the long run because it furnishes mass power and yet preserves the individualism which has been the instrument of American development. I can not refrain, in this connection, from raising a warning against the disposition to look to the Government for the continuing exercise of war powers or for the exercise of other powers in behalf of agriculture, or labor, or commerce. The farmer should be the last man to surrender his personal rights of property, as they are represented in the price of his commodities, to the control of Government for there are more consumers than producers, and governments reflect the self-interest of the majority.

What Guaranties Would Mean.

"Besides, in a democratic government, we can not permit deliberate class favoritism. A guaranteed price for farm products will require a guaranteed price for manufactured products and for labor, and presently we would come to a wholly artificial system that would break down with a mighty crash because it would attempt the impossible task of making a uniform prosperity in spite of variations of faculty and changes of circumstances. All human experience is against any such scheme. The war has taught us some lessons in the uses of government. We shall be able, from time to time, to employ governmental agencies for purposes not originally contemplated, but let us be careful that in establishing new uses of government we do not evolve abuses by government. The laws of nature have not been changed by war, nor have economic laws been changed, nor has human nature been changed. We are wiser than we were four years ago or two years ago, but this is still a world of struggle and sin. Prosperity is not to be decreed by government, nor is the league of nations to bring the millennium. Industry and morality will still be the means of progress and culture. Idleness and inefficiency will bring distress; labor and genius will bring success. Agriculture is not exempt from these universal laws. The plain duty of those who assume responsibilities of leadership is to combat with equal courage the false practices of ignorance of scientific truth and the delusions of false philosophy."

BIRD TREATY ACT NOT AFFECTED BY SUPREME COURT DECISION.

The migratory-bird treaty act, under which the Government protects the game and song birds of the country, is not affected by the action of the Supreme Court in dismissing, on motion of the Government, the Shauver case, involving the constitutionality of the Federal migratory-bird law of March 4, 1913. The act of 1913 was repealed by the bird treaty act of July 3, 1918. The Shauver case, which had been in the courts since 1915, involved the constitutionality of a repealed law and was therefore dismissed. This explanation is made by Dr. E. W. Nelson, chief of the Biological Survey of the Department of Agriculture.

BIG FARM CROPS THIS YEAR MAY MEAN HELP SHORTAGE

Assistant Secretary Christie Discusses Readjustment Problems

Expects Many Men to Return to Farms from Military and Industrial Service—Advises Good Homes and Opportunities

In an address by Assistant Secretary of Agriculture G. I. Christie at the meeting of the Farm Management Association in Baltimore recently, Mr. Christie said that with thousands of their former helpers still in military and industrial service there is still an urgent need for American farmers to maintain large production. But there is every reason, he said, to believe that most of the men who left the farm for such service will return to agricultural work following demobilization.

Following is Mr. Christie's address:

"The farm labor outlook for 1919 must be considered in the light of conditions that existed during peace times, the removal of men from the farms for military and industrial purposes during the war, the extent of future agricultural production, the extent to which men will be released from the Army and industries, and the opportunities and inducements to be offered to farm help.

Agricultural Production—1919.

"The need for men on American farms will depend on the extent to which production is to be carried on. The Secretary of Agriculture in his annual report for 1918 states that, 'The first year of our participation in the war, 1917, witnessed the Nation's record for acreage planted—285,000,000 of the leading cereals, potatoes, tobacco, and cotton, as against 261,000,000 for the preceding year, 251,000,000 for the year prior to the outbreak of the European war, and 248,000,000 for the five-year average, 1910–1914. This is a gain of 22,000,000 over the year preceding our entry into the war and of 35,000,000 over the five-year average indicated. Even this record was exceeded the second year of the war.' There was planted in 1918 for the same crops 289,000,000 acres, an increase over the preceding record year of 5,600,000. While the acreage planted in wheat in 1917 was slightly less than that for the second year of 1915, it exceeded the five-year average (1910–1914) by 7,000,000 and the acreage planted in 1918 exceeded the previous record by 3,500,000. The acreage planted during the current fall season reaches 49,027,000, exceeding all previous records.

Large Production Probable.

"The acreage of farm crops that farmers will plant in 1919 is, of course, problematical. It is evident that the spirit of patriotism, the guaranteed price for wheat, a fixed price for hogs, and the high prices that were almost assured for other farm products, and the unusually favorable conditions during the spring for seeding and planting are responsible for the large acreage in 1918. If the weather conditions for planting should be unfavorable in the coming spring, a material reduction in acreage must necessarily take place. Also, the stability of prices for farm products will be more or less in doubt and will influence to some extent the planting program. On the other hand, prior to 1914, production in the United States was not keeping pace with consumption. Each year saw a material decrease in the amount of farm products exported to other countries. In fact, large imports of agricultural products were made by this country. During the war there has been an increase in the population of the United States. The markets of the entire world have been opened for American products. It is almost assured that a large and urgent demand from European countries for foodstuffs will continue for one year or more. For these reasons, therefore, it would seem that American farms should maintain the maximum of production. Again the individual American farm can be compared to a manufacturing plant. It will be most profitable when it is operated to its maximum capacity. Instead of reducing acreage or production, it will be desirable from the farmer's standpoint to maintain maximum yields, and thus secure the largest financial returns. In this connection, of course, it is understood that many farmers who have planted land to grain crops year after year during the war in order to meet the demand for foodstuffs will now, since farming is to be restored to a peace-time basis, place these lands in the regular rotation and seed them with other than grain crops. This readjustment of crops in the return to a basis for a profitable, permanent agriculture is sure to reduce in some degree the acreages of grain crops.

The Labor Situation Now.

"For a long time prior to the war, American farms have experienced a shortage of labor. In answer to the plea of the Department of Agriculture and agricultural colleges for a better cultivation of crops, keeping of live stock, spraying of trees, saving of fruit, and the fixing up of the home and the home grounds, farmers have replied that they recognized the practicability and desirability of all the claims but that they did not have sufficient capable help to do the work.

"Industries and professions in the cities have offered opportunities and many times large cash returns to men of the farms, with the result that there has been a large and continuous movement of people from the country to the city.

"The acquiring of new lands for farms in practically every State has gone forward at a rapid rate. Efficient farm laborers have been encouraged to become tenants or land owners. The number of farms has materially increased while the number of farm laborers has failed to make a proportionate growth.

"Information furnished by the War Department shows that more than 4,000,000 men have been mobilized for military purposes. It is estimated that 25 per cent of this body came from the farms. In other words, American farms furnished to the military service more than 1,000,000 men. Careful estimates also indicate that for every man taken from the farms into the Army one and one-half men went from the farms into war industries. This means a total loss of 2,500,000 from the farms during the period of the war. To meet this handicap caused by lack of regular or permanent farm labor, retired farmers have been pressed into service, boys, men, and women from the cities have assisted, and larger machinery and labor-saving equipment have been used. While farmers have been willing to get along and handle the work in this way and with such help as could be had, they realize the urgent need of skilled men to assist in carrying on the work. The aim should be to establish on the farms a large supply of regular and permanent farm help.

Soldiers Will Return to Farms.

"'Will a sufficient number of men be returned from the Army and war industries to meet the needs of agricultural production this coming spring?' is a question prominently before the agricultural people. Already strong demands have been made upon the War Department to release from the Army at once all men interested in food production. The demobilization of all camps in the United States is proceeding in a rapid way and it is hoped that the larger number of men will be released by spring in sufficient time for the regular farm work. There is every reason to believe that the larger number of men who came from the farm will return to agricultural work.

"With reference to the Army in France, it is hardly probable that any large num-

ber of these men will be demobilized before peace is declared. It has been announced that one and one-fourth million men have been chosen for occupational duties. Again, we know that in the case of past wars the demobilization has been somewhat slow. A statement in a recent number of the Literary Digest shows that demobilization in the case of the Russo-Japanese War required 13 months; the Boer War, 10 months; Spanish-American War, 16 months; Turko-Russian War, 18 months; Franco-Prussian War, 28 months, and our Civil War, 17 months.

"While the United States Government has been accomplishing unusual feats during the war, it is evident that with the distance troops must be transported, and other uses for the shipping, some reasonable length of time will be required to return the troops from overseas. There is little reason to believe that peace terms can be arranged before spring. Therefore, the larger number of men to be demobilized after that time will hardly be available until well into the summer or fall.

"The manufacture of war materials and equipment is being curtailed and in a majority of plants stopped. Shipbuilding is proceeding, but with many less men than used prior to the signing of the armistice. The work on the building and equipping of cantonments and other war plants has been abandoned. From these lines many thousands of men have been released to return to their former occupations and to enter other industries.

"On the other hand, industrial and manufacturing plants engaged in manufacture of peace-time products probably will soon be operating on a full-time schedule and giving all possible employment. The Government, States, counties, and municipalities are starting large public projects, such as buildings and roads, for the purpose of utilizing the services of available workers.

Give Opportunities to Workers.

"The return of labor to the farm will be governed by the opportunities and inducements that can be offered in the way of wages, homes, and chance for advancement from laborer to tenant and from tenant to landowner.

"It is not reasonable to expect that the farms will pay the same cash wage that is now being paid in the industries. The farm offers, in addition to a cash wage, a home and large share of the living, an opportunity to acquire land, and a place in society that is not found in the cities. The following is illustrative of what many farm laborers are receiving:

"'In addition to the cash wage, the man is furnished a good house with one-fourth acre for garden, feed for one cow, one horse, and all the chickens he cares to raise, 400 pounds of pork, and all the fruit and potatoes his family needs. The farmer also gives this man a present of $50 each Christmas.'

"It will be desirable for farmers to continue to offer a fair wage for labor and to provide satisfactory living accommodations for farm help.

"There is an urgent need for more tenant homes where married men can live in reasonable comfort. The old shack or bunk house does not satisfy these people and will not hold them on the farm. Neat, well-built, well-located, and comfortable tenant houses will attract men with families and hold them in the country.

"Plans, too, that will offer high-class laborers an interest in the farm business and which will aid them in securing not only a fair return for their labor, but a chance to become tenants or landowners, will mean much in solving the labor problem."

Small Stocks of Eggs, Butter, Cheese In Storage, Markets Reports Indicate

Shortages of cold-storage eggs, butter, and cheese are indicated by the semi-monthly report of storage stocks issued by the Bureau of Markets, United States Department of Agriculture. There were 590,000 fewer cases of eggs in cold storage January 1, 1919, that on January 1 last year. During January of last year 1,000,000 cases were removed from cold storage, this being 220,000 cases more than the total holdings on January 1 of this year, which amounted to 780,000 cases. Although there were 350,000 fewer cases placed in cold storage this season than last, the withdrawals to January 1 were 240,000 cases more.

Butter Stocks Low.

The shortage in the cold-storage holdings of creamery butter is about 7,600,000 pounds, according to the report. The holdings on January 1, 1919, were 44,865,000 pounds. As the quantity stored was 7,275,000 pounds less this year it appears that the consumption of cold-storage butter has been only slightly increased over last season. No information is available as to the portion of the butter now in cold storage that is owned by the Government.

Cheese Holdings Less.

The stocks of American cheese in cold storage on January 1, 1919, amounted to 20,785,000 pounds, this being about 55,000,000 pounds less than last year's holdings on the same date. As the quantity stored for the season was 39,000,000 pounds less than last season, the consumption during the last three months of 1918 appears to have been about 17,000,000 pounds more than during the same months in 1917. The quantity stored in 1917, however, was abnormal, being 27,000,000 more than the 1916 stocks. The quantity held on January 1, 1919, was about 2,500,000 pounds less than the balance left in storage on June 1, the close of last season, and carried over into the present storage season. These figures are said to indicate that the cheese shortage may become acute before the production of fresh cheese reaches its highest point in June and the fresh stocks are plentiful.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for veterinary bacteriologist, for both men and women, on February 26, 1919. Two vacancies in the Bureau of Animal Industry, Department of Agriculture, one for duty at Washington, D. C., and one for duty at Chicago, Ill., at entrance salaries ranging from $1,500 to $2,000 a year, will be filled from this examination.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

FARM BUREAU ORDERS ALFALFA SEED.

Thirty-five members of the Monmouth County (N. J.) Farm Bureau, ordered 58 bushels—3,480 pounds—of alfalfa seed from Kansas and Montana last year. It was delivered to them at a cost of $12.60 a bushel. After several years of testing it has been found that alfalfa seed from the West and Northwest is much hardier and is best suited to the soil and climatic conditions of New Jersey.

Hopes States Will Assume Emergency Regulation and Service U. S. Must Stop

In an address January 6 before the State commissioners of agriculture in session in Baltimore, Charles J. Brand, Chief of the Bureau of Markets of the United States Department of Agriculture, expressed the hope that legislators and people generally have seen sufficient benefit during the war from constructive regulation and service work by the National Government under emergency appropriations and emergency war powers to insure that a greater measure of State support will be given to such activities in peace times.

Mr. Brand called attention to the fact that much of the regulatory work done by the National Government during the state of war must necessarily cease with the signing of the peace treaty because in times of peace the Federal Government has very meager authority for such work, being compelled to rely upon its control of interstate commerce, the taxing power, and the general welfare clause of the Constitution.

"In peace times," he said, "certain things can be reached more effectively under the police powers of the States." He expressed the hope that State legislatures will give attention to these matters in cases where it is very clear that supervision in peace times is desirable and can not be handled satisfactorily by the Federal Government. The aim of such regulation, he thought, should be constructive rather than punitive.

State Work Summarized.

In that connection Mr. Brand made a summary of the real points of service in the State marketing department. The first requisite, he said, is careful and economically sound investigational work, upon which to base every activity undertaken.

"Many things," he continued, "that appear at first blush to be highly desirable in the way of regulation or service work will upon investigation be found to be unnecessary if not undesirable.

"Second. Much educational work should be carried on among both producers, distributers, and consumers with reference to the more efficient and economical handling of products.

"Third. Groups of producers and consumers should be assisted in organizing for the more effective accomplishment of their selling or purchasing activities. In this connection I wish to say that existing agencies of distribution, both wholesale and retail, should be given every possible assistance through information and education in order that they may be more efficient. In other words, our assistance in the establishment of cooperative enterprises does not foreclose in the slightest the desirability of making individualistic enterprises as efficient as they can possibly be. Competition between methods of distribution results in efficiency in all.

Transportation and Storage.

"Fourth. The rendition of assistance in the conservation of food products in the course of transportation and storage and on the markets, by assisting in the furnishing of better refrigerator and heater-car equipment, more efficient common and cold-storage houses, sufficient equipment for moving those products that do not require special cars, and by directing the attention of consumers to products on the market in plentiful supply in order that they may be consumed instead of wasted.

"Fifth. The collection and dissemination of market information as to prices, quantities, available crop movement, market conditions, and those other factors which make for intelligent and efficient distribution. The Bureau of Markets at present carries on its market information service in fully 40 cities of the United States. It operates over fifteen to twenty thousand miles of leased wires, and, I am told by the companies, handles more traffic than any other single agency in the United States, except the Associated Press. State divisions of marketing should supplement the National news service as far as their facilities and appropriations will permit in bringing the benefits of information collected by the National Government to the citizens of the State.

Inspection Service Important.

"Sixth. Inspection of products for the protection of the distant shipper and of the consumer and to facilitate prompter movement should be undertaken. So far as lies in its power and its present means the Bureau of Markets is already carrying on this type of work in 40 of the most important markets of the United States. Obviously it can not cover every city within a State which may have real need for such service. It is likely that the greatest loss or the greatest increase in cost in the distribution of farm products occurs during the course of retail distribution. State divisions of marketing can be of assistance in this matter. State divisions of marketing can further be very helpful in encouraging the establishment of better local marketing facilities, packing houses, track-side storage houses, farmers' public markets, and by the maximum local distribution of locally grown products."

SECRETARY NAMES ACTING CHIEF FOR OFFICE OF FARM MANAGEMENT

The Department of Agriculture announces the appointment of R. L. Adams, associate in charge of farm management, University of California, as Acting Chief of the Office of Farm Management, effective January 1, 1919. Mr. Adams will take charge of and direct the work of the office under the immediate supervision of Assistant Secretary Christie until further orders.

Dr. J. I. Falconer, head of the department of rural economics, Ohio State University; Dr. H. C. Taylor, head of the department of rural economics, University of Wisconsin; and Dr. G. F. Warren, head of the department of farm management, Cornell University; and other leaders in rural economics and farm management will cooperate with Mr. Adams in reviewing projects and in formulating plans for the larger development of the activities of the Office of Farm Management and the more complete execution of the projects agreed upon.

E. H. Thomson, assistant chief, at his own request has been relieved of executive duties in the Office of Farm Management in order that he may devote his time during the next few months to the preparation of material resulting from studies to which he has given particular attention during his association with the office.

BEST WAYS TO CONTROL HOG LICE.

Lice on hogs can be controlled in various ways, but complete eradication is best secured by the use of dipping vats, experiments conducted by the United States Department of Agriculture show.

Medicated hog wallows and rubbing posts, the experiments showed, kept the number of parasites reduced so that they caused little or no damage, but neither of these methods destroyed all the lice. Crude petroleum was used on the rubbing posts and the wallows were medicated with coal-tar creosote dips, pine tar, crude petroleum, and bland oils. Crude petroleum and coal-tar creosote dips proved to be more effective when applied from an ordinary sprinkling can than when used in wallows or on rubbing posts.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

BOYS AND GIRLS OF NORTH AND WEST LEARN TO IMPROVE FARMS AND HOMES

An organized effort to improve agriculture and home life through boys and girls—that is, the purpose of boys' and girls' club work as conducted in the 33 northern and western States by the United States Department of Agriculture and State agricultural colleges.

Boys' and girls' club work is as permanent as is the public school system, because it is backed by permanent institutions, State and Federal, permanent legislation, State and Federal.

It is a definite part of the cooperative extension program in every State in the Union and a definite part of the county farm bureau or other farmers' organization for cooperative extension work within a county.

Extension work with boys and girls covers the field of food production and food conservation, also work in home economics or home-making lines.

Boys' and girls' club work is designed to change the point of view of the boys and girls, both rural and urban, of America so that they will want to make further preparation and study in the business of farming and home-making, and will see the need of taking the Smith-Hughes vocational courses in agriculture and home economics, and matriculating for courses in colleges of agriculture.

Club work makes farm and home work, sometimes thought of as drudgery, an interesting game. Club work sets standards of achievement for boys and girls in home activities and dignifies common labor.

It is training for community leadership and farm and home cooperative work of every type and kind.

It socializes community life through the boys and girls, and gives young people a real motive in all their work.

It also teaches farm boys and girls that it is infinitely better to be a proprietor of farm land, farm animals, machinery, crops, kitchen equipment, etc., than to be a mere wage earner.

It produces and conserves food to meet local, national, and world needs on an economic basis.

It demonstrates how to make farming and home making profitable and tolerable.

It engages the best thought, energy, and interest of every boy and girl in the business of farming and home making. Club work is a practical back-to-the-home, "made-in-America" type of education that has for its chief aim the practical basis for extension education, not provided for in the public school curricula nor in the Smith-Hughes vocational work.

Boys' and girls' club work has a permanent, year-round program of work, both for the group and the individual member, supported by permanent funds, permanent program, permanent leadership in every State in the Union, and reaches boys and girls, both in and out of school, of all ages from 9 to 21 years. In most States they are grouped in two classes—members of the boys' and girls' clubs from 9 to 15 and junior farmers and home makers from 15 to 21.

> **"THESE**
> **Are the Kids**
> **that raised the food**
> **that fed the man**
> **that carried the gun**
> **that shot the Hun**
> **that tried to run**
> **Back to Berlin."**
>
> **(Motto of the Pierce County, Wash., Boys' and Girls' Club members.)**

Boys' and girls' cooperative extension work includes all extension activities of young people, including club work, junior short courses, boys' and girls' institutes, summer agricultural camps, field trips, field demonstrations, boys' and girls' fairs and festivals, demonstration team contests, club programs, training conferences for leaders, and so on.

O. H. BENSON,
In Charge Boys' and Girls' Club Work North and West.

COW PROVIDES MUSIC LESSONS.

In Pottawatomie County, Okla., lives a little club girl who won in 1916 many prizes for club work—enough, in fact, to buy a calf. This fall she sold the calf, which had grown into a cow, for $80. She plans to use the money for music lessons this winter while she is attending high school. She is proud that she is able to pay for the lessons by her own work.

CLUB BOYS IN SOUTH EXPECTED TO "CARRY ON" FOR BETTER FARMS

The boys belonging to agricultural clubs in the territory served by the Office of Extension, South, have demonstrated what can be done by boys between the ages of 10 and 18 years when their heart is in the work.

When called upon in 1917 to aid in the production of food, feed, and material for clothing our soldiers in the trenches "over there," these young soldiers in the furrows "over here" responded with the production of crops valued at $4,486,921.60. In 1918 two boys responded where one answered in 1917, and it is confidently believed that when the reports of the value of crops produced by these young soldiers reach Washington it will be found largely in excess of the production of 1917, although climatic conditions in many sections militated against them.

The great war has been brought to a successful conclusion. The agricultural club boys have demonstrated what can be done on the farms. Will they be satisfied to return to the conditions which obtained before the war? Those who know them best and trust them most do not believe that they will, but do have an abiding faith that they will "carry on" and ultimately make their communities, their counties, and their States by means of the practical training received through agricultural club work fit dwelling places for the new spirit of democracy.

The aims of our club work are:

1. To improve farm practices by instructing boys in correct agricultural methods.
2. To furnish an extensively organized means of effecting permanent improvement in agriculture and rural life.
3. To put into practice the facts of scientific agriculture obtained from books, bulletins, etc.
4. To assist in the development of the spirit of cooperation in the family and in the community.
5. To dignify and magnify the vocation of the farmer by demonstrating that labor intelligently applied to farming brings satisfactory returns.
6. To enlarge the vision of the boy and to give him definite purposes at an important period of his life.
7. To furnish to the rural schools and teachers object lessons which may be

used to help them in teaching agriculture.

8. To make rural life more attractive by providing organization, which tends to diminish isolation and develop leadership.

I. W. HILL,
In Charge of Boys' Club Work, South.

Lad Wins Laurels with Leghorns; Raises His Winners in a Back Yard

John D. Ireland, a lad of 14, living in Lincoln City, Del., got the poultry bee in his bonnet and determined to raise chickens in his back yard. He joined a boys' club, and after absorbing all the poultry information he could, started in to apply it.

Of course, he became a prize winner; to tell that is one of the chief points in this little story. John was a double trophy taker, capturing both State and county fair prizes with a pen of four White Leghorns. In money value the prizes did not amount to a great deal; as a stimulus to future activities, however, they will mean much, for John Ireland intends to set a pace for his fellow club members next season. This, in his own words, is the account of his experience:

"First of all, after signing the club pledge and sending in my membership card, I got permission of my father to use a portion of one of his henhouses. I cleaned it and ridded it of lice and mites, and also put in a food, grit, and shell hopper.

"There was no range for the chickens, so I took some chicken wire an made one. My father told me I could get my hens from his flock, so one evening after school I selected eight of the best ones I could find, taking special note that each was in healthy condition, and that the pelvic bones were wide apart, and that they had large red combs.

"When warm weather came on I took the straw out of the pen and put sand in. I gave them a bath in a solution to kill the lice that might be on them. I fed them on a balanced ration, oats morning and evening, dry mash and green feed at noon. Occasionally I would bring in a head of cabbage and hang it up high enough to make them jump for it, as chickens need exercise.

"Along came July and August with their heat, but I lasted through. After a while the State fair began, and I sent four of my best hens. Soon I received a letter, saying my hens had taken the county and State prizes. Then I came pretty near dying with an attack of the swell head.

"My hens went through the molting stage early in September and I didn't get many eggs then. Although there was a little work connected with it, I really enjoyed it."

The summary: Fowls on hand November 1, 8; value, $8.75; State and county prizes won at fair, $7.50; eggs sold, 46⅔ dozens, at 45 cents, $23.33; total, $39.58; cost of breeding stock, $8.75; cost of feed, $6.92; total cost, $15.67; total profit, $23.91.

TEXAS BOYS MAKE MONEY FROM CALVES

Club Members Take Numerous Prizes and Sell Stock at Profit

"I have bought a $50 Liberty bond and intend to use the balance to help in paying my expenses at the A. and M. College the coming term," was the answer of a club boy in Nolan County, Tex., when asked what he would do with the profit from the sale of his two prize-winning calves.

This boy, Billie Whiteside, a member of an agricultural club conducted by the United States Department of Agriculture and the Texas A. and M. College, exhibited two calves at the Fort Worth Fat Stock Show. His steer calf, a little over a year old and weighing 950 pounds, brought $149.62, besides winning $25 in prizes. The heifer calf, 11 months and 18 days' old, weighed 810 pounds and sold for $123.52, also winning $25 in prizes. The cost of feed and expenses was $85 for each calf, leaving a profit of $103.14 on the two, besides the $50 in prize money.

Another entry at the Fort Worth show was that of John Childers, a 15-year-old club member from Sweetwater, whose calf, 14 months old and weighing, after shrinkage, 1,060 pounds, sold for $169, after winning $20 in prizes. This young exhibitor believes in good stock, and has bought a registered Hereford calf with the proceeds.

KEEP THE CLUB WORK GROWING.

(Tune, "Keep the Home Fires Burning.")

As Sung by a Southern Club.

There were club boys on the hillside,
There were club boys on the plain,
And the country found them ready
At the call for meat and grain.
Let none forget their service
As the club boys pass along,
For although the war is over,
They are singing still this song:

Chorus.

"Keep the home cow milking,"
And the club corn silking,
Tell the idle boys and girls
We work for home;
There's a club pig growing,
While the grain we're sowing,
Boost the club work day and night,
Till we "live at home."

Club Girl's Bantam Hen Does Her Bit—Rears Three Turkeys

The boys' and girls' poultry club in Searcy County, Ark., was, and is, a live-wire organization. Not to belong is to lack standing among the youngsters. One small girl who wished to be among the elect saw the coveted membership escaping her when the club leader told her there were no more settings of hen's eggs procurable in that locality. Undiscouraged, the would-be member scoured the neighborhood, and later came back with four turkey eggs, all the embryo poultry material she could locate. She was admitted to the club.

Her difficulties had only begun. In the excitement of locating the eggs she had forgotten until she reached home that the sole incubator which she could use was a tiny bantam hen. But Mrs. Bantam, as well as her mistress, proved heroic and rose to the emergency. By fluffing up her feathers well she managed to cover the turkey eggs, and so faithfully did she do her duty that all four eggs hatched, to the delight of the poultry club member and herself.

The four turks were brought up in quite proper turkey fashion by their foster mother and owner, although the amount of feed they managed to consume kept the providers busy. Later in the summer one of the four met with an untimely end, and "so there were three." These three big, bronze beauties with their tiny foster mother, to whom they were apparently much attached, were one of the popular exhibits at the county fair this fall.

CLUB WORK HELPS FILIPINO BOY SUCCEED

Corn, Rice, and Tobacco Net a Profit From One-Fourth Acre

Boys and girls in the Philippines have agricultural clubs, too. Vincente Cacho, principal of the school at Anda, Pangasinan, has this to say of one lad's success:

"In June, 1917, a school pupil won a prize in tree planting, and gave a real proof of accomplishment. This reawakened other boys who had previously failed. Among them was Melquides Cale. Melquides asked for another trial as a corn contestant. These figures show the result

of this little Filipino's work on one-fourth of an acre:

"Corn, first crop, 723 ears, value $7.23; rice, intercropped, 50 bundles, value $13; corn, second crop, 855 ears, value $8.55; tobacco, intercropped, 2,599 leaves, value $25; value of miscellaneous intercropping, $10."

One of the best ways to improve farming in the Philippines, says Mr. Cacho, is to show the native farmers, through boys' and girls' club work, what can be done by practicing crop rotation, intercropping, intense cultivation, and fertilization of the soil. The start has been made.

Boys and Girls Help Stimulate Mississippi's Sheep Industry

Mississippi, like other Southern States, gives to boys' and girls' agricultural clubs much credit for stimulating the adoption of progressive farming methods. In so far as lamb clubs are concerned, W. A. Ritch, the farm demonstration agent for Yazoo County, is given special credit, for it was he who, in 1917, began the organization of these clubs, the first in the State. Mr. Ritch, through these youngsters, is credited for much of the remarkable progress Yazoo County has made during the past few years in responding to the call for more wool and mutton.

From information received by the States Relations Service of the United States Department of Agriculture, Yazoo County will ship about $15,000 worth of lambs this year, and many more next year, for the industry is just getting under way. Mr. Ritch, it is reported, plans to have hundreds of boys' and girls' club members in the business next season. He thinks every farm in the State ought to have a few sheep, and predicts that the day is not far distant when "the hills and valleys from the Tennessee line to the coast will be dotted with these white-clad prosperity makers." Incidentally, this Yazoo County demonstrator thinks Shropshire and Southdown sheep are best suited to the Mississippi climate.

A small boy in this county received two ewes and a buck on February 1, 1917. For the clip from these sheep and their descendants in 1917–18 he made enough money to pay for the three, had left $9.20 and six sheep, valued at $75. In other words, what he makes this year will be clear, after only a year and a half of work. A little girl in the county received three ewes November 15, 1917. The wool clip from these three and one buck lamb which she sold brought here enough to pay for the three ewes, left her $10.30, and she now has six grown sheep worth $75.

Three brothers and a sister bought 10 ewes, for which they paid $54.50. This year's clip netted them $56 and they have 20 grown sheep valued at $240.

Sheep raising on a larger scale also pays in Yazoo County. T. H. Griffis bought 13 ewes less than 10 years ago. In a short time 6 of them died, leaving him only seven as the foundation of his flock. This spring's clip netted him $558. Last year he sold $400 worth of lambs. He has sold $275 worth this year and has $275 worth yet to be sold. He has 250 head of sheep ranging in value from $12.50 to $15 each, and all this from 7 ewes, bought less than 10 years ago. Mr. Griffis, like most of the progressive farmers of the State, believes in cooperative shipping. At the time he marketed his wool a neighbor of his sold his wool on the local market. He received 37½ cents, while Mr. Griffis got 55 cents, a net difference in their total receipts of $168.

BOYS AND GIRLS PUSH FOOD WORK

Much Canned Goods and Poultry Credited to North Dakota Members

Members of the boys' and girls' clubs in North Dakota alone, under the supervision of the Department of Agriculture in connection with the State college of agriculture, in 1917 canned 22,500 quarts of fruit and vegetables, and during the past year put up 60,600 quarts of fruits, vegetables, soups, and meats. Ninety-eight per cent of the latter amount is for home use.

Members of the poultry clubs of the State hatched and raised 23,820 chickens, with a value of $23,329, as compared with 3,136 chickens raised in 1917, with a value of $3,029.50.

In 1917 the girls in garment clubs made 1,600 new garments, while in 1918 3,795 new articles were made, 759 were made over, and 1,518 were made for the Red Cross. Quite as large increases are to be noted in the other projects undertaken by these energetic boys and girls.

CLUB WORK BUILDS CHARACTER

Girls in Spokane Learn Industry, Perseverance, and Teamwork

"Our girls haven't teased this summer to go somewhere all the while, nor have they been walking the streets," report the mothers of members of the girls' canning club in Spokane, Wash. Apparently the school girls of that city have been so interested in the work they did during the summer vacatiou at the canning center that movies palled in comparison.

Three hundred and nine girls in Spokane worked at this community canning center, and $17,442 worth of canned products was the result of their efforts at the central kitchen; while $37,850 is the estimated value of what they put up in jars at home, at the center, and for friends.

The result in dollars and cents is small beside the value, in the mothers' eyes, of their daughters having learned industry and perseverance, as well as acquired practical knowledge. The ability to work together without friction has been a valuable by-product.

Girl, Nearly Blind, Has Garden And Raises Pig for Uncle Sam

A little girl in Berkshire County, Mass., who is nearly sightless, heard and heeded the call for increased food production this year. When 4 years old, through an accident, she became blind in one eye. Since then the sight in the other has been gradually going.

She had bought war-saving stamps, but this patriotic girl regarded that as only an investment, and she felt deeply what she wrote: "I want to do something which is *work* for my country." About this time a boys' and girls' potato club was organized in her district, under the direction of the Department of Agriculture and the agricultural college at Amherst.

To grow potatoes, which would help the food supply and save transportation—two things her Government asked—made an immediate appeal to her and she joined the potato club. Except a few furrows turned by her father, where the land was especially rough, every bit of the work in her potato plot was done by the girl. In addition, she helped her father in his garden. The products of her work, which made a fine showing, are stored for the family's use this winter.

Not contented to help Uncle Sam by means of a garden plot alone, she joined the pig club. In her written report may be read between the lines the difficulties encountered in managing these two diverse projects. "The greatest delight my pig had was jumping the fence of his pen and rooting in my garden."

Three weeks were required, because of the condition of her eyes, for this brave-hearted club member to write the story of her project. In all the different projects of the boys' and girls' clubs a story is required of the members.

And beside the pig and garden work, this little girl ranked as the second largest gatherer of pit stones in Berkshire County during the pit-shell drive.

FARMERS MAY LACK LABOR AGAIN AT HARVEST OF 1919

Conditions Not Expected to Reach Normal Before Next Season

Department to Maintain Organization to Aid in Supplying Help—Labor the Year Round Advocated as Best Plan

Even if peace treaties should be formally executed before the next harvest season, farm labor conditions in the United States will not automatically return in 1919 to prewar conditions. Therefore the United States Department of Agriculture is planning farm labor activities for 1919.

Officials of the department suggest that the farm labor situation in 1919 may be quite as serious as that of 1918. A large part of our Army may remain in Europe throughout the year.

What Wheat Acreage Means.

The area of winter wheat sown in the fall of 1918 is estimated by the Department of Agriculture at 49,027,000 acres, which is 15.9 per cent more than the revised estimated area sown in the fall of 1917.

The winter wheat acreage speaks a volume in regard to the need for farm help. Three or four men will be needed to harvest what one man has planted—and there has been no claim that there was a surplus of labor for the planting operations.

The Department of Agriculture plans to maintain its organization that aided in supplying farm labor in 1918. It will aim to tap every source of emergency help—men, women, and girls from the cities, the Boys' Working Reserve, and other organizations of that sort.

Permanent Labor Advocated.

The main effort of the department, however, is to be centered on placing men permanently as helpers on the farms. Permanent labor, employed the year around under good living conditions and at fair wages, is believed to be one of the prime needs on literally millions of American farms.

Many soldiers and men who have left the farms for war industries—and figures show that war industries took more men from the farms than were given to the Army—are expected to return to the farms if they are offered permanent and profitable employment.

What is the farmer's part in making farm labor permanent? In the first place, department officials believe, every farm that has an idle period during a part of the year should so plan its operations that there will be work through every season. Crops can be rotated, live stock fed, dairying pursued, and poultry produced. These activities, added to grain production, will solve the problem in many sections, it is believed.

Large numbers of married men should be working on the farms, it is stated. To get them, better tenant houses are needed in many cases and permanent employment is a prime necessity. To help meet the need for good tenant houses the department has developed plans for model structures.

Cooperation Helps Farmers.

One feature of the department's work deals with stimulating cooperation and exchange of labor among farmers. For example, it recently has listed the heads of more than 1,000 thrashing rings in Ohio, Indiana, Illinois, and Michigan. These rings include from 3 to 20 farms and involve not only the cooperative purchase of a thrashing machine, but also the cooperative arrangement of crews for harvesting and thrashing.

The plan has proved so successful that the same idea is spreading to other kinds of farm work which can best be handled by crews or teams of men.

BOTH LIVE STOCK AND LUMBER MAY BE GROWN ON YELLOW PINE LANDS

The country drained by the Columbia River east of the Cascades and north of the Snake River Valley is capable of producing a sustained yield of 700,000,000 board feet of lumber and of furnishing at the same time summer forage for 200,000 cattle or a million sheep, according to a bulletin just issued by the Department of Agriculture entitled "Effect of Grazing upon Western Yellow Pine Reproduction in Central Idaho."

The timber and the stock are so important to that country that it is desirable to make the land produce them both. The sheep have a tendency, however, to browse and trample young conifers, and the problem is to get full use of the forage that grows under the western yellow pine without destroying the pine reproduction. This can be done, the department's specialists say, by observing certain principles in managing the grazing, described in detail in the bulletin.

The range should be grazed before the forage becomes dry and unpalatable, so that the stock will not be tempted to choose the succulent tree reproduction in preference to the dry forage. Stock should be left on an area only long enough to remove the greater part of the palatable forage. Exceptions to this, however, may be made in spots where there is great fire danger, or where a sheep driveway completely grazed will act as a fire line.

Allowing the sheep to scatter and graze with as little disturbance as possible, arrangements for salting and watering that make it unnecessary for the stock to bunch up closely for salt or trail long distances for water, and the use of the "bedding-out" method of herding, in which the herder moves around with the sheep and camps near wherever they stop for the night—bedding them not more than one night in a place— will save the pine reproduction from serious injury and will produce heavier and more valuable live stock.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended January 18, 1919:

Practical Hints on Running a Gas Engine. Farmers' Bulletin 1013.

Producing Family and Farm Supplies on the Cotton Farm. Farmers' Bulletin 1015.

A Study of Some of the Chemical Changes Which Occur in Oysters During Their Preparation for the Market. Department Bulletin 740.

Production of American Egyptian Cotton. Department Bulletin 742.

The Economical Use of Fuel in Milk Plants and Creameries. Department Bulletin 747.

Need of Strong Departments of Agriculture in the States. Remarks of D. F. Houston, Secretary of Agriculture, before the National Association of Commissioners of Agriculture, at Baltimore, Md., January 7, 1919.

To-day and To-morrow in American Agriculture. Remarks of D. F. Houston, Secretary of Agriculture, before the Association of American Agricultural Colleges and Experiment Stations, at Baltimore, Md., January 8, 1919.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Broadly speaking, all insects which are a menace to fruit growers, secure their feed in one of two ways: By biting and swallowing portions of the food material, or by sucking the juices from the interior portion of the host. All biting insects are subject to destruction with arsenicals or other stomach poisons. Sucking insects are controlled by the use of contact sprays, which corrode the body or penetrate the breathing portions of the pest or otherwise effect their destruction.

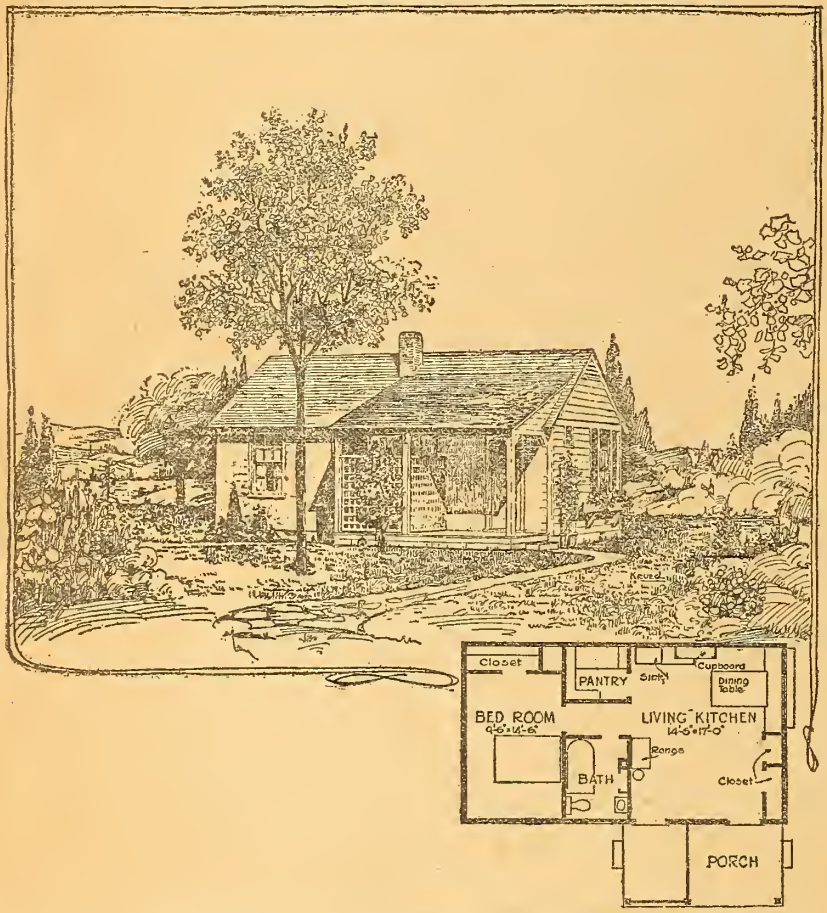
Good Tenant Houses Draw Farm Labor; Department Offers Working Plans Free

Better quarters and improved farm homes that offer a bonus in household facilities and conveniences to the hired man and his family, something more than the mere shelter of four walls and a roof, are first needs nowadays in assuring an adequate movement of good labor countryward. That was the thought in the minds of specialists of the United States Department of Agriculture who set about to develop some suggestive, sensible plans for tenant houses and farm houses. This article describes four of these.

To obtain and keep the services of satisfactory farm help is quite a different matter now from what it was a score of years ago. To-day in many sections it is like winning charity from a miser to secure experienced farm help. The farmer competes with the manufacturer, contractor, industrial occupations, and public works. Not only does he have to pay higher wages than formerly, but he has to supply better living conditions, larger rations, and more pleasant surroundings to satisfy his labor.

Make Appeal to Married Men.

A comfortable farm home is of particular appeal to the married man, and where a permanent labor supply is required most farmers prefer married men because they are more reliable and dependable. Having assumed family responsibilities the married man is less subject to wanderlust than the single man. The thing which usually most influences the married man's decision to remain in the country is the home he is offered. On this account farsighted farmers are building better tenant houses and are providing them with some of the modern conveniences. The Division of Rural Engineering of the United States Department of Agriculture recommends the tenant houses shown in the accompanying illustrations as practicable means of securing more contented and better satisfied farm labor. The houses are designed to accord with farm conditions, to harmonize with their surroundings, and to provide conveniences and facilities necessary for a better farm life.



PLAN I.—A very satisfactory and comfortable two-room tenant house which is inexpensive.

The simplest of these houses, shown in Plan I, consists of a two-room structure—one bedroom and a combined living room and kitchen. A desirable feature is in the two entrances to the living room, one from the open porch and the other, which can be used as a work entrance, from the latticed section of the porch. The latticed section provides the convenience of the back porch without detracting from the appearance of the cottage. The house is comfortable, convenient, and inexpensive, and of a type that will appeal to married farm hands.

Three-Room Houses.

Plan II represents a plain, simple house of three rooms. The third room may be used either as a bedroom or living room. The floor plan shows the arrangement with and without bathroom. It is recommended that the bath be installed when the house is built, but if not, provision has been made for the addition of bathroom and rear porch later.

Another practical farmhouse is shown in Plan III, which provides two bedrooms and a combined kitchen and living room, or one bedroom, a living room, and a combined kitchen and dining room. The plan provides for laundry facilities, a screened porch, and alternate basement plans, one with a full cellar allowing the use of a furnace and the other with a cellar under only a part of the building.

Plan for Larger House.

Plan IV represents a complete two-story house which provides ample space on the ground floor for a kitchen, a combined living room and dining room, and a wash room and laundry, and on the second floor three bedrooms, a screened sleeping porch, and a bath. A basement has room for a furnace and ample space for the storage of fuel and other supplies. This design is particularly adapted for families with children or for the occupation of a married tenant who boards one or two single men.

All these plans are drawn for frame construction with the use of standard siding, but the houses may be built of any available material, such as cement blocks, tile, brick, stucco, or cut or field stone. The use of building material other than frame will necessitate some slight revisions in the structural details as well as possible minor changes in the foundation layout, without radical alteration of the interior arrangement.

May Use Home Material.

Roofs and foundations may be of any material which has proved satisfactory

in the locality. The roof construction of the two-story house is of sufficient strength to support a slate roof, if desired, while by the substitution of 2 by 6 for 2 by 4 rafters, slate roofing may also be used on the other houses. Materials available on the farm, such as field stone for the walls and farm-grown lumber for the framework, should be used as far as possible. On the farm which has plenty of good woodland practically all the dimension or framing lumber required for any of these houses can be cut and sawed at home with the assistance of a portable sawmill and its crew.

Anyone who contemplates building tenant houses of this description may secure a full set of working drawings of any one of these designs on application to the Division of Rural Engineering of the United States Department of Agriculture.

AMERICAN FARMING HAS SURE PLACE, SAYS DEPARTMENT IN 1919 FORECAST

(*Continued from page 1.*)

duction, abnormally stimulated by the demand for oil during the war, should be readjusted as a part of the crop economy in the territory to which it is adapted. The department urges those who intend to maintain home gardens to plan to meet the needs of the family rather than to produce crops for market.

The general food situation will be affected by new factors introduced by the signing of the armistice. Attention is called to the fact that while many millions of people have been added to those that must be aided by the Allies, the demobilization of armies will permit men to return to the farms and that an attempt to increase food production in all the affected European countries may be expected this year. While normal prewar production may not be expected in many areas, it is evident that under favorable conditions a material increase over the past year will be secured in Europe as a whole. In the light of these conditions, the cereal requirements for 1919 are reviewed.

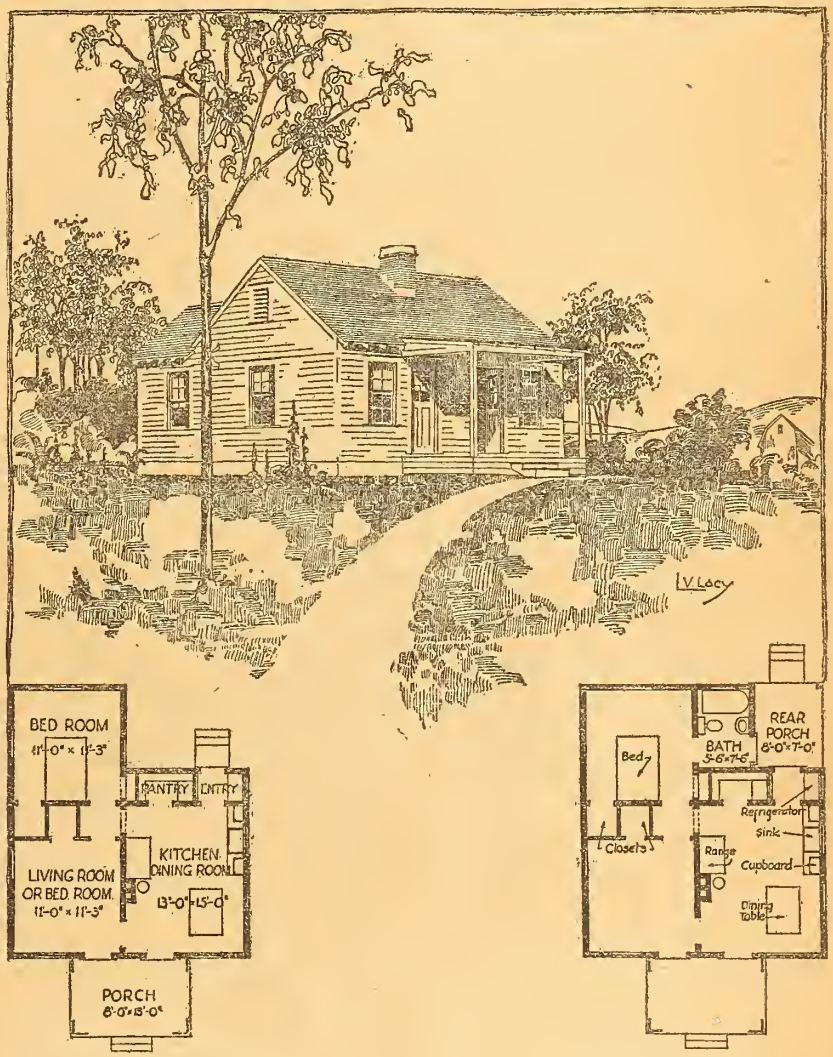
What Europe Will Need.

Total import wheat requirements for Europe, including Germany and Austria, appear likely to exceed 728,000,000 bushels. The estimated surplus stocks from Canada, Argentina, and Australia total 495,000,000 bushels. From the 1918 crop the United States will probably have a surplus of 277,000,000 bushels for export and carry-over. If the total surpluses of other countries are exhausted—and Russia, which before the war produced an exportable surplus of 162,000,000 bushels, is not relied upon for anything this year—the United States would be called upon to export 233,000,000 bushels and would have a carry-over into next year of 44,000,000 bushels. This carry-over, however, is likely to be reduced by increased consumption in the United States and Europe following several years of short rations. The 1919 wheat crop in the United States is expected to give an exportable surplus of from 350,000,000 to 400,000,000 bushels. In both 1919 and 1920 the question of price and the ability of European countries to finance purchases are pointed out as the decisive limiting factors.

European countries will need to import, both this year and next, about 65,000,000 bushels of rye, 179,000,000 bushels of barley, 118,000,000 bushels of oats, and 255,000,000 bushels of corn. The United States can supply from its 1918 crop all the oats required and will still have a surplus of 166,000000 bushels, but will lack 8,000,000 bushels of rye, 59,000,000 bushels of barley, and 402,000,000 bushels of corn for domestic consumption and net requirements for Europe, which can not be supplied elsewhere.

It appears that the world may have a surplus of rice amounting to about 15,428,000,000 pounds. The Department of Agriculture, however, is not certain of the accuracy of the rice figures furnished it.

The estimated requirements for flaxseed by the United States and Europe is 59,900,000 bushels. There appears to be a deficit of about 29,000,000 bushels when all visible supplies are included. This deficit is due to increased demand for linseed oil, to the elimination of Russia



PLAN II.—This simple, serviceable house can be built with or without a bathroom as the owner desires.

from the estimates, and to small surpluses in other flax-producing countries.

Cotton Deficit Seems Apparent.

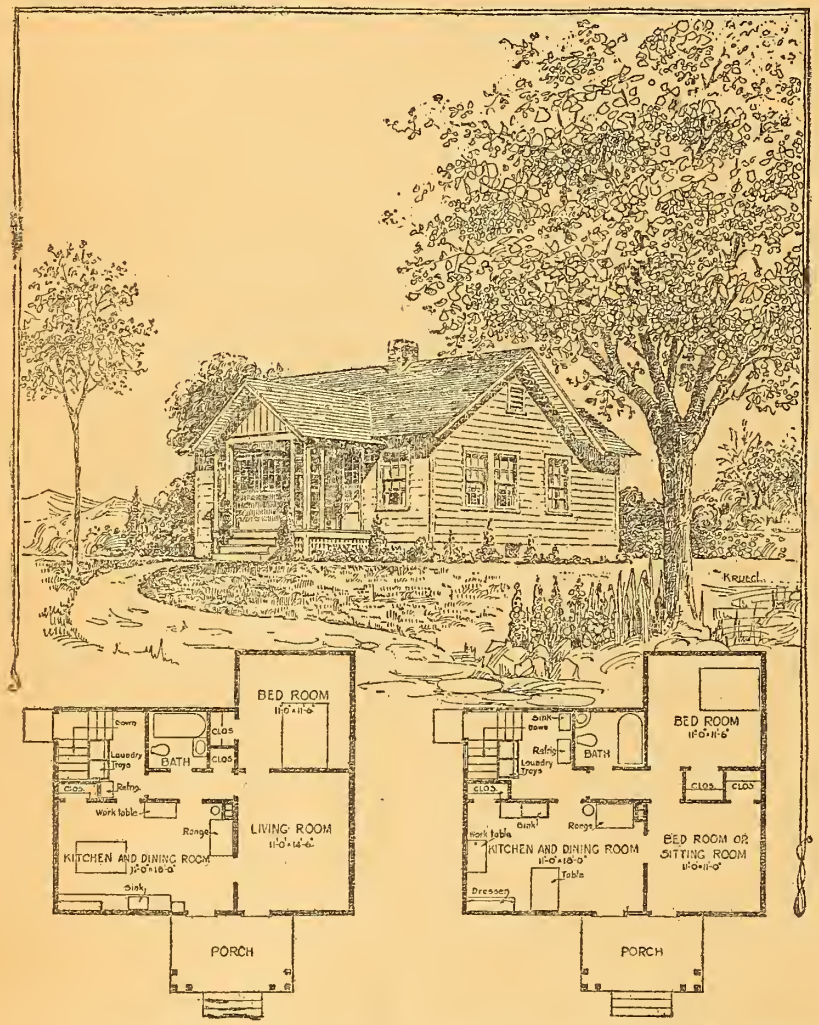
For the five years preceding the war, the average cotton requirements of the European allies, Japan, Germany, and Austria-Hungary, were 13,010,000 500-pound bales. Total surplus stocks of all cotton-producing countries appear to be about 8,280,000 bales. This leaves an apparent deficit of 4,730,000 bales. This is not to be accepted, however, as an absolute deficit, because there is no means of knowing whether or not European requirements will be the same as they were before the war.

The United States appears to have an export surplus of 620,000,000 pounds of tobacco, which is 248,000,000 pounds more than would be needed in Europe on a prewar basis.

Enough Sugar for World.

The world production of sugar is 18,750,000 short tons, about 188,000 short tons less than the annual average for the five years just before the war, which is regarded, with old stocks, as sufficient to meet a normal world consumption, though the distribution is not normal. Europe is about 50 per cent short on beet-sugar production, and no large increase is expected within the next 12 months.

A surplus of horses and mules in the United States in excess of domestic demand is indicated, notwithstanding average annual exports of 235,786 from 1914 to 1918. Some European demand appears likely to continue.



PLAN III.—An attractive, three-room cottage provided with bathroom, laundry facilities, and furnace heat.

American Dairy Products Wanted.

The abnormal demand for dairy products in Europe, due to the war, appears likely to continue for a year or more. European peoples have become accustomed to American dairy products and there appears to be an opportunity to expand over prewar requirements. The number of beef cattle in the United States increased from 35,855,000 in 1914 to 43,546,000 on January 1, 1918. During the same period exports of beef and beef products increased from 151,000,000 pounds to 601,000,000 pounds. There has been a decided reduction in the number of beef cattle in Europe, and the demand there for American beef is not likely to be less than for several years prior to the war, when it ranged from 733,000,000 pounds to 151,000,000 pounds.

The number of swine in the United States increased from 52,933,000 in 1914 to 71,374,000, the largest number on record, on January 1, 1918, and reports indicate that the number on farms on January 1, 1919, was slightly larger still. Reports indicate a considerable reduction in the number of swine in Europe. However, in estimating the European demand for American pork and pork products, the large stocks now on hand in the United States and the rapidity with which the number of swine can be increased must be borne in mind. The foreign demand, particularly for lard, which constituted 50 per cent of all pork products exported from 1910 to the breaking out of the war, is likely to be heavy during the present year. Germany, which took about 30 per cent of America's exports of lard before the war, must be considered, together with Austria-Hungary, as a probable buyer this year.

Wool Price to Fall.

For the first time in many years the number of sheep in the United States showed an increase on January 1, 1918, the number then being 48,900,000, and reports indicate a further substantial increase to January 1, 1919. The number of sheep in Europe has undoubtedly declined, some reports indicating that the decline in France has been as much as 41 per cent. The number of sheep in Australia and Argentina has increased by about 4 per cent since 1914, and better transportation facilities since the signing of the armistice will enable those countries to reach Europe to better advantage with mutton and wool. Stocks of wool declined 125,000,000 pounds from September, 1917, to September, 1918. The cessation of hostilities found supplies of wool in private hands exhausted in the United States, with 399,000,000 pounds owned or controlled by the Government. This represents about 76 per cent of the stocks on hand in September, 1917, and will be turned back into trade channels. Presumably, the same situation exists in Europe. The 1918 price of wool can not be expected to be maintained. Mutton consumption in the United States is likely to increase as soon as the supply is sufficient.

Most Seed Supplies Adequate.

The supply of seed for the leading staple crops, the Department of Agriculture

says, is adequate and, in general, well distributed. The only important field crops of which the adequacy of the supply is in doubt are red clover and sugar beets. Red clover is greatly needed for restoring rotations and fertility.

Special care in seeding to red clover and the substitution of alsike wherever practicable are urged. The supply of sugar-beet seed appears ample to plant a normal acreage in 1919, but the necessity for protecting the supply for 1920 is so great as to make strict economy necessary. The treatment of seed grain to prevent fungus diseases is characterized as probably the most important work in connection with the seed supply for spring sowing in 1919.

Expects Enough Fertilizers.

The prospects of adequate supplies of fertilizers for use this spring are good. The producing capacity of ammonium sulphate plants has been doubled since 1913. Large stocks of nitrogenous materials brought into the country for munition purposes are now available for agriculture, and there is a surplus of sulphuric acid producing capacity, together with available supplies of phosphate rock, to produce ample quantities of acid phosphate. The Department of Agriculture has $10,000,000 worth of nitrate of soda for distribution to farmers for cash at $81 a ton, plus freight. Indications are that supplies of European potash can not be obtained in time for use this spring.

May Be Lack of Labor.

Considerable amelioration of the farm-labor shortage is expected to result from the discharge of men from the Army and from munition and other industries. The Department of Agriculture and the State agricultural colleges will continue to cooperate with the Department of Labor and State agencies in securing necessary help for farmers and the hope is expressed that, if the emergency requires it, the active assistance given by the people of the cities in 1917 and 1918 will be duplicated this year.

Advises Use of Other Plants to Save Seed of Select Cotton

Present methods used to increase stocks of select cotton seed are slow and wasteful, according to a specialist of the United States Department of Agriculture. To save as much as possible of the select seed the department advises the substitution of seeds of other plants, as beans or peas, or of those of cotton of a distinctly different type, that can be removed easily at the time of thinning, for part of the seed of a select variety. The substitutes, used as nurse plants, would help the select cotton seedlings to break through the soil and would prevent the waste resulting when the select cotton plants are thinned and many are thrown away.

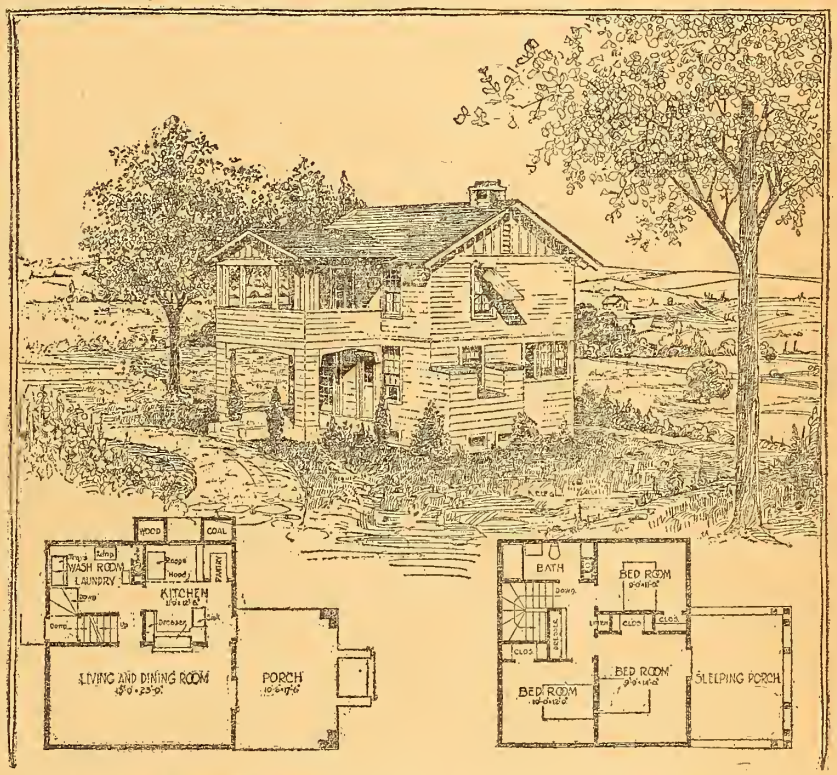
Under the present methods the number of seeds planted far exceeds the number of plants that can be left to mature. Usually 50 to 75 per cent of the seedlings are destroyed at the time of thinning. Often this means a waste of valuable seed. Under the new method the number of select seedlings that have to be destroyed is greatly reduced, most of the surplus plants representing other seeds (beans or peas). These plants are as effective as the select plants in breaking through a soil crust, which is the chief purpose of planting 5 to 8 or more seeds in a hill.

Bulletin 668, Nurse Planting Select Cotton Seed, published by the department, discusses the new and old methods in detail. At San Antonio, Tex., where experiments were conducted, successful plantings of seed mixtures were made by improved methods in hills, and in drills with both hand and mechanical corn planters. The use of corn planters for planting cotton seed was made possible by delinting the seed with sulphuric acid.

"By utilizing this method of nurse planting in increasing cotton selections," the bulletin says, "it is believed that a gain of at least one year and probably three years in time can be effected, as 30 to 60 per cent more land may be planted each year with select seed than is possible by present methods."

DIG OUT THE TREE BORERS.

The most effective method of reducing injury to fruit trees by certain borers, as the peach and apple tree borers, is to "worm" the trees regularly in the spring and fall of each year. Previous to worming, the earth should be removed from around the crown of the tree to a depth of 4 or 5 inches and the trunk brushed or scraped free of bark and loose dirt. Remove the borers by means of a knife, stiff wire, or other suitable tool.



PLAN IV.—This house provides excellent quarters for a married man who boards one or two single men.

The potato crop of 1918 was harvested almost as usual in the relative quantity dug each month, reports the Bureau of Crop Estimates. Before August, 13 per cent of the total crop of early and late potatoes was harvested, and this was also the fraction for August. In September, 28 per cent of the crop was dug; in October, 42 per cent; and in November and December, 4½ per cent.

Of all orchard work, spraying is most likely to be slight or even neglected. It is important, therefore, that every fruit grower make a study of the whys and wherefores of spraying and have an intimate knowledge of spraying materials and machinery.

National Forests Furnish Recreation Worth to Visitors $7,500,000 In a Year

Last year the national forests provided $7,500,000 worth of recreation to the people of the United States, according to a statement of Landscape Architect Frank A. Waugh in his publication Recreation Uses on the National Forests, just issued by the United States Department of Agriculture.

The Government charges no admission fee to these great recreation grounds, containing some of the finest hunting, fishing, and camping places in the world; but if citizens had paid the minimum price demanded for wholesome recreation by commercial dealers in that commodity, and willingly paid by the public, the total would have reached the above amount. More than 3,000,000 people spent on the average not less than 25 hours in the forests, so that the number of hours of recreation was at least 75,000,000. A valuation of 10 cents an hour equals the cost of a cheap movie. But the charge to the public for hunting or fishing, for visiting the wonders of the national monuments, for access to some of the finest scenery in the world, for automobiling and picnicing was nothing—a low price to pay for $7,500,000 worth of recreation.

Visitors Provided For.

Outdoor recreation is a necessity of civilized life, and as civilization has become more intensive the value of the forests for recreational purposes has increased tremendously. The extensive use which the public is now making of the national forests for this purpose places recreation alongside of timber production, grazing, and watershed protection as one of their primary uses. The Forest Service has made many provisions for the benefit of the visitors. Camping and picnic grounds equipped with many conveniences are provided, game is protected, the streams and lakes are stocked with fish, and trails and roads make the hunting and fishing grounds and the scenic beauties of the forests accessible. In a number of cases cities near the national forests have leased especially desirable sites for municipal playgrounds. Persons who wish to build permanent camps may now lease tracts of not more than an acre for that purpose.

The national forests have attractions also for the sightseer, some of them such as he could not improve upon, however much money he might spend traveling over the world in the search.

Other Lands Surpassed.

For instance, Dr. Waugh says: "If one had the wildest fjord of Norway brought inland and filled with sweet and quiet waters, or if one had Lake Brienz of Switzerland extended to a length of 50 miles, one would have a possible competitor for Lake Chelan; but until such improvements in terrestrial topography can be made this lake is unique. It is, in short, and without exaggeration or qualification, one of the best landscapes in the world." The Devil's Post Pile, the Grand Canyon of the Colorado, the Cliff Dwellings in the Santa Fe and Gila Forests, and many other interesting and wonderful sights add to the value of these national recreation grounds.

The recreational value of the national forests alone is estimated by Dr. Waugh as more than the whole cost of their administration, and is in addition to the timber and forage resources and the value of watershed protection. On this basis the national forests are certainly a paying investment for the American people.

GOATS GOOD FOR CLEARING LAND.

Angora goats are effective in clearing up many shrubby, cut-over pasture lands, but goats are dry-climate, warm-weather animals and the eastern stockman is advised to be cautious in stocking his farm with them until he is thoroughly familiar with goat nature and their peculiar needs. The unfounded prejudice against goat meat, based on a too intimate acquaintanceship with "Billy" of odoriferous fame, must be largely overcome before goat raising in the East can approach anything like the success it has attained in western Texas.

Strict Maintenance Ration for Carrying Stock Through Winter

The greatest obstacle in developing the grazing industry in many eastern and central sections is the cost of wintering the stock. It is impossible to buy young cattle or sheep in the spring in sufficient quantities and at a price to yield a satisfactory profit from the summer grazing.

One of two plans must be followed, says a department specialist. A breeding herd may be kept to produce the stock, as is practiced on the ranges of the West, or young stock may be purchased in the fall—the plan followed by the grazers in the bluegrass region of the Virginias and Kentucky. Either method necessitates the wintering of animals.

Right here should be laid down a hard-and-fast rule, the specialist believes. Cattle which are to be grazed the following summer should be carried through the winter on a strictly maintenance ration. Silage, corn stover, straw, and unmarketable hay should form its basis. The silo is almost indispensable for economical feeding of such stock. No grain should be fed if it can be avoided. It has been the experience of grazers in the bluegrass region that steers which have lost 50 pounds in weight during the winter finish the grazing period weighing the same as those which made a gain of that amount.

Country-Life Conference Indorses Government Demonstration Work

In a country-life conference at Baltimore, Md., January 6 and 7, leaders in the country-life work of various national and State organizations, such as the United States Department of Agriculture, the State agricultural colleges, the United States Bureau of Education, the State universities, the War Camp Community Service, the State boards of health, the Federal Council of Churches, the Presbyterian Board of Home Churches, the Red Cross, the Council of National Defense, met to consider their common problems and to correlate their efforts in working out an all-round program for meeting social needs.

Believing that the already firmly and successfully established county farms and home demonstration agencies—farm bureaus in the North and West and councils of agriculture in the South—are the logical institutions through which the program of the national country-life conference should be promulgated, the delegates from all sections of the United States representing the organizations named above placed their approval upon this plan of work.

The recommendation for this line of action was made by A. B. Graham, of the States Relations Service of the United States Department of Agriculture, who addressed the large convention of rural sociological workers on the subject of "The Agricultural Extension Service—A New Factor in Country Life."

Certain insects, notably the plum and quince curculios, may be much reduced in numbers by regularly jarring the trees in the early spring, collecting the insects as they fall on sheets or special cloth-covered frames.

Cheese Making In South Progresses Rapidly; Many Carloads Are Shipped

The rapid strides in the development of cheese factories in the mountain regions of the South, as the result of the efforts of the United States Department of Agriculture, cooperating with State agricultural colleges, is shown forcefully in reports of the progress of the work coming to the department. No cheese was shipped from the South previous to 1914. Although smaller lots were shipped earlier, the first carload of southern-produced cheese was shipped from North Carolina and Tennessee on July 24, 1918. This was a cooperative shipment from eight local factories and comprised about 16,000 pounds, the value of which was approximately 25 cents a pound.

SOUTH MAKES MORE CHEESE

Previous to 1914 the South shipped no cheese. In 1915, $3,000 worth was manufactured and shipped from southern mountain districts, and during 1917 cheese to the value of $246,000 was manufactured. There are now 43 cheese factories in operation in the mountain sections of the South. They ship carloads of good quality cheese to market periodically.

Region Well Adapted.

Forty-three cheese factories now are in operation in the mountain regions of the South, where cold springs of water on each farm provide excellent facilities for keeping the milk in such a condition that it produces a high quality of cheese. Abundant rainfall, luxuriant grass, high altitude, and a moderate temperature all combine to make this region especially adapted for the production of cheese which can compete on the market successfully with that produced in any other section of the country, say dairy specialists of the United States Department of Agriculture.

The most recent advanced steps in the progress of the cheese-making industry in the South have been the perfecting of the marketing system whereby one of the large packing companies sends a refrigerator car to a central shipping point periodically. Since the initial carload shipment from North Carolina and Tennessee carloads have been going forward nearly every 10 days. A representative of the packing company receives from the various factories the cheese which is brought in by wagon and immediately issues a check to the local bank for all cheese received. The bank in turn promptly pays the patrons of the factories for the cheese.

Marketing Plan Helps.

The plan of marketing milk through cheese factories has increased the interest in cheese manufacturing throughout the southern mountain districts. The improved market service is not only creating much interest and enthusiasm for cheese production, but incidentally it is creating interest in other farm products. Recently one of the field men of the Department of Agriculture was at one of the factories and observed many farmers bringing in wagon loads of potatoes, which were hauled to the cheese-shipping point for shipment in a refrigerator car.

In a number of counties arrangements have been made to obtain cheese boxes from local lumber concerns, in order to relieve the extra cost of shipping these boxes long distances. On account of the war, men cheese makers are hard to get, so women are being trained for the work. Already five women have been engaged as cheese makers.

WEEVILS IN ALFALFA HAY STOPPED BY FARM BUREAU; $114,000 SAVED

Weevil control work in Millard County, Utah—a project of the county farm bureau—during the 1918 season saved alfalfa hay estimated to be worth $114,000.

A demonstration field was selected in each community by the farm bureau committee and meetings were held during the season. The hay was removed at least one day before the demonstration was to start, care being taken that a close, clean clip made the ground as bare as possible. A portion of the field was deeply harrowed both ways with a spring-tooth harrow on the day the demonstration started, and was dragged with a drag harrow, under which had been placed several layers of woven-wire field fence, until there was no sign of living vegetation, and a deep fine dust mulch was formed. A check plot in each field was left untouched, except that the hay was removed.

In every case the alfalfa so treated started a second growth at once, unretared by the weevil worms, while the check plot remained bare, the weevil worms eating every green bud that tried to start in three or four weeks. By the time the check plot became green the alfalfa on the treated fields was 12 to 18 inches high.

MUCH POULTRY IN COLD STORAGE; 58 PER CENT MORE THAN IN 1918

An increase of 58 per cent in poultry held in cold storage on January 1, 1919, compared with stocks on the same date last year is shown by the cold storage report of the Bureau of Markets, United States Department of Agriculture. Total stocks on January 1, 1919, reported by 334 storages, were 106,917,290 pounds. Present stocks are about 15 per cent smaller than on January 1, 1917, when holdings were unusually large.

An increase of 62.4 per cent in fowls held in cold storage on January 1 of this year compared to a year ago is shown by the report, while percentage increases in other classes of poultry are given as: Broilers, 48.6; roasters, 51.2; turkeys, 57.9; and miscellaneous poultry, 67.3 per cent.

Game Laws Are Summarized for Benefit of Trappers and Hunters

To aid trappers and hunters, the United States Department of Agriculture has issued Farmers' Bulletin 1022, Laws Relating to Fur Bearing Animals, which is a summary of legislation in the United States, Canada, and Newfoundland, relating to trapping, open seasons, propagation, and bounties. Under the stimulus of high prices there is always danger that trappers will deplete the trapping grounds and permanently decrease the number of fur animals, the Federal specialists say. Regulations and seasons should be carefully observed, so that the fur supply of the future shall not be endangered.

For the fiscal year ended June 30, 1918, the foreign trade of the United States in raw and manufactured furs reached the largest total in the history of the country. While exports were only $13,903,631 as compared with $15,729,160 for 1917, the imports were $38,389,372 as compared with $21,553,375 for 1917. The total foreign trade in furs increased over 40 per cent.

Much of the crop reporting field work done for the United States Department of Agriculture is by reporters who receive no pay, and who assume duties because of public spirit and love of the work. The longest service by a crop reporter for the Bureau of Crop Estimates was 53 years by Upton C. Deardorff, of Dover, Ohio, who recently died at the age of 91 years.

SAVE BIG CROPS BY WORKING PRISONERS OF COUNTY JAIL

Farm Bureau Workers Find a Way When Task Seemed Hopeless

Too Many People Were Sitting Down, Anyway, So Chair-making Contract Was Canceled—Planning for This Year

With 12,000 acres of food crops above the normal plantings, farmers of New Haven County, Conn., last spring and summer faced a labor situation that seemed hopeless. Munition and other war-work factories, employing nearly 200,000 men, were draining the labor reservoir with wage inducements that no farmer could meet. Weeds were taking the crops and the farmers were in despair when the New Haven County Farm Bureau turned its attention to the problem and put a special worker in charge.

The labor specialist found that the only source of labor that the factories could not control was the county jail with its population varying from 200 to 400 men. Under a contract this labor was being employed at making chairs for a privately owned factory. The farm-bureau workers felt that chairs were not a war necessity at a time when too many persons were sitting down, anyway, and public sentiment was brought to bear on the proper officials. The chair contract was canceled and the labor made available to the farms.

How It Was Done.

Farmers took these jail inmates to their farms in groups of from 5 to 25, leaving at 7 o'clock a. m. and returning at 6 o'clock p. m. The farmer paid a daily fee of $5 to the deputy assigned as guard and paid the county $1.75 each for groups of more than five and $1.50 each for groups of five. The farmer provided transportation. The county allowed the convicts 35 cents a day on compensation vouchers from the farmer showing that the men had put forth honest effort.

The weeds were routed and the crops pulled through. The plan added a total of 3,794 days of man labor on the farms and brought the county treasury $5,761.15. It proved of great value, physically and morally, to the prisoners and it opened up a new avenue of emergency farm help.

Makes Plans for 1919.

In addition to this emergency help from the prisoners, the farm bureau sent 1,290 men and boys to the farms, established a camp of boys at Wallingford for farm labor under efficient leadership, and aroused public interest to the needs of the farms. The farm bureau mapped out, before the end of the war, a campaign in 1919 for farm help that would include the Women's Land Army units, Boys Working Reserve, prisoners, and floating labor. The machinery is ready to meet any problems of farm labor which may arise next spring and summer.

Building Up Permanent Pastures Not the Work of Single Season

Fertilizing pastures should be looked upon as a permanent investment, in a class with fences and buildings, rather than a reason for expecting full pay and a profit the season they are applied, says a department specialist. No system of farming maintains fertility, once in a soil, as does grazing with beef cattle or sheep. There are many pastures in the blue grass region which have been grazed continuously for from 50 to 100 years and to all appearances are better than ever now.

Lime, phosphates, and stable manure are the materials which give the best and most lasting benefits. They are also the cheapest of fertilizing substances. A liberal use of these at the start is advisable rather than small applications at frequent intervals. The same may be said of reseeding. Scattering a little seed among weeds and brush is usually a waste of time and money. The results obtained are not at all comparable to those where a seed bed with fertilization has been prepared before seeding.

WOULD DEVELOP MODEL VILLAGE AT ENTRANCE TO GRAND CANYON

A plan for the development of the village of Grand Canyon, Ariz., is outlined by Frank A. Waugh, well known as a landscape architect, in a special report which will shortly be published by the Forest Service, United States Department of Agriculture. It points out that as the village is part of the Grand Canyon National Monument and a public property, and has come into existence only because of the tourist business, it should be developed chiefly for the visiting public.

The plan aims to make the town a harmonious gateway to the canyon, forming a dignified and artistic approach to its wonderful and unique scenic beauty. The scheme of development provides for making the most of the view from various walks and lookouts by relocating pathways and constructing shelters and resting places. A new approach to Bright Angel Trail, more in harmony with the scenic opportunities and an informal botanical garden containing local species are proposed.

The needs of the local community as well as visitors are given consideration. Church and school grounds, the convenient location of stores and residences, and an attractive plaza are provided for, and many suggestions for the promotion of social contacts and social unity are made. Immediate steps are recommended for an investigation by competent engineers of the questions of water supply, sewerage, and lighting for the town, and some form of self-government at the earliest favorable moment is also advocated.

MAKING BETTER PASTURES.

The following suggestions for pasture improvement are given by a department specialist:

Cut or deaden all trees except those needed for shade, and clear off the brush and rubbish. Pasture plants can not compete with timber. One should decide whether he desires woods or pasture and act accordingly.

Have the shady places on the higher parts of the field and not along running streams or around ponds. Much fertility is lost from grazing lands because this rule is not more generally followed.

Fertilize as you would for a good meadow. There is nothing better than an occasional top-dressing of stable manure. This should be applied in the fall or winter. Acid phosphate and basic slag are very efficient in promoting the growth of tame grasses and clovers and they in turn tend to crowd out the weeds. The weed problem in closely grazed pastures on rich soils is practically nothing.

Reseed an old pasture only as a last resort. If pastures in the East fail, it is usually because of depleted fertility and not from lack of seed. Reseeding should be done in a thorough and not a slipshod manner and only after the fertility of the soil has been restored.

Cut the tall, rank growing weeds once and preferably twice during the season.

Put on enough stock to prevent the plants from maturing. The turf on a good pasture should not be more than 2 or 3 inches high.

Do not underestimate the value of your grazing lands, but study their needs and strive to make them more productive.

FINDS DROUGHT-RESISTANT PLANTS.

Improved and uniform varieties of sorghum, millet, alfalfa, and broom grass capable of resisting drought and especially adapted to climate and soil conditions of the northern portions of the Great Plains, have been obtained by the United States Department of Agriculture by selection from mixed commercial stocks.

SWEET CLOVER GAINS FAVOR ON MANY CORN-BELT FARMS

Grown in Rotation for Feed and as Catch Crop to Plow Under

Long Regarded as a Weed, It Now Is Cultivated; Bulletin Telling How to Handle It Is Offered

Sweet clover, long regarded as a troublesome weed, has gained favor on many farms in the corn belt, where it is now being successfully grown both in rotation for stock feed and as a catch crop to be plowed under to enrich the soil.

It has proved excellent for hay and pasture and is unequaled by any other legume as a soil improver. Mixed with bluegrass, it makes a pasture of nearly double the carrying capacity of bluegrass alone. It may be used to good advantage for silage, and on some farms, with proper management, it is a profitable crop. Farmers' Bulletin 1005, recently issued by the United States Department of Agriculture, gives details of management and the more important farm practices followed on many of the successful corn-belt farms on which sweet clover is grown as one of the principal crops of the rotation.

Hitherto sweet clover has been grown mainly on odd fields outside of any set rotation or cropping system, says the bulletin, but the fact that it is found growing as a weed along roadsides is no indication that it will thrive in adjacent fields.

Lime Often Lacking.

Success with this legume, the bulletin adds, is rare unless three essentials for its success have been provided. They are lime, inoculation, and scarified seed; that is, seed which has been treated to scratch or crack the hard coat and make it easy for moisture to penetrate and hasten germination.

Probably more failures with sweet clover in the corn belt can be traced directly to lack of lime than to any other cause. In some sections a ton of finely ground limestone, or one-half that amount of hydrated lime, well worked into the soil, will be sufficient to prepare it for growing sweet clover. But in other localities more may be needed. The required bacteria are sometimes present in the soil, but unless this fact has been fully determined failure to inoculate either the seed or the soil adds a big element of uncertainty. While it is true that much of the seed raised in some sections of the corn belt is sown locally without having the tough seed coat roughened, and that good stands are secured, generally more seed is required and the practice entails unnecessary risk. Scarified seed usually can be secured through local seedmen at a slight additional expense, or home-grown seed can be sent to seed houses for this treatment at a nominal cost.

Seed May Bring Cash.

On grain or crop farms usually a small acreage of sweet clover furnishes all the hay and pasture needed, leaving the greater part of the crop to be plowed under to enrich the soil. After the details of handling the crop have been worked out, the sale of sweet clover seed may become an added source of cash income. Usually in the beginning it is better practice to plow under most of the crop rather than attempt seed production. But where the seed crop can be managed properly sweet clover will serve both purposes to good advantage. On combination grain and live-stock farms sweet clover serves even a better purpose. It promotes the keeping of live stock, because of the hay and pasture it produces as a part of the rotation, and as a mixed seeding with bluegrass it furnishes a pasture with greatly increased carrying capacity.

Rotations Suggested.

A good example of a two-year rotation practice on an Illinois farm and referred to in the bulletin consists of corn the first year, and small grains, such as oats or wheat, with a seeding of sweet clover, the second year. The one objection to this crop system, however, is that the sweet clover must be left growing until about May 10 in order to obtain the most suitable growth for plowing under. At this time of the year the combination of dry weather and the strong sweet clover roots in the soil often make plowing very difficult, and when left until this date the plowing must be done quickly in order to get the corn planted in the proper season.

A successful and effective three-year rotation on a grain and live-stock farm consists of: First year, corn; second year, oats, barley, or spring wheat with a seeding of sweet clover and timothy; third year, sweet clover and timothy. A good four-year rotation for a hog farm is: Corn the first two years; oats with a seeding of sweet clover, alsike and timothy the third year, which is left for pasture during the fourth year. Another four-year rotation with sweet clover is: First year, corn; second year, oats with a seeding of sweet clover as a catch crop; third year, wheat with a seeding of sweet clover; fourth year, sweet clover for hay and seed. For a general live-stock farm the following four-year rotation is suggested: Corn, soy beans, wheat with a seeding of sweet clover and mixed pasture, the pasture crop being allowed to remain the fourth year. A five-year rotation is also suggested which allows a part of the land to be set aside for alfalfa. It consists of corn the first year, oats with a seeding of mammoth clover as a catch crop the second year, corn the third year, oats with a seeding of sweet clover with some alsike and timothy the fourth year, and sweet clover the fifth year.

BEET AND CANE SUGAR COMBINE TO MAKE NEARLY AVERAGE CROP

Beet and cane sugar combine to make nearly an average production of sugar in this country for the season beginning in 1918. A little over a million short tons, or 1,007,050, is the total of the two crops, according to estimates, subject to revision, made by the Bureau of Crop Estimates. The average of the preceding five years is 1,031,603 tons, or somewhat greater than the production of 1918.

The cane-sugar crop of 1918, however, is estimated to be 266,950 tons, or considerably above the average of the preceding five years, 248,496 tons, while the beet-sugar crop of 740,100 tons is below the five-year average of 783,108 tons.

Conditions have been unfavorable to cane-sugar production in recent years until 1916, and hence the average of 248,496 tons for 1913–1917 is much below the average of 333,617 tons for 1908–1912. Sugar beets also have their unfavorable years, such as 1917 and 1918, yet the average production of beet sugar in the five years 1913–1917, which was 783,108 tons, was 43 per cent greater than the average of the preceding five years. There was a large expansion of harvested acreage. For the two sugar crops combined the five-year average production has increased 17 per cent from the former to the later period. In the former period beet sugar was 62 per cent of the total of cane and beet sugar; in the later period, 76 per cent; and in 1918, 73.5 per cent.

To these two sugar crops may be added the estimated maple crop of 26,756 tons, sirup being included in terms of sugar, so that the total sugar production of contiguous United States for the season beginning in 1918 is about 1,033,806 tons. This is approximately equal to the average of the five years preceding, while during the same time population has been increasing, and since the summer of 1914 a great war has profoundly affected the world's sugar production and distribution. A million tons of sugar would have been approximately enough for the consumption of this country before the war for three months.

Choice fruits, especially grapes, may often be protected from insect pests by the use of paper bags placed around the bunches and securely fastened by twine to the supporting shoot or cane. Bags may be put in place as soon as the blossoms have fallen.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations.

Wisconsin Digs Out the Barberry.

Nine of the 12 infested areas in Wisconsin have been freed of the common barberry, the ornamental shrub which harbors the black rust of wheat and other small grains. In a few years it is expected that the entire State will be clean of infection. Early settlers in Wisconsin introduced the barberry, the fruit being used in wine and jelly making. Their children and children's children are now working assiduously to eradicate it because it menaces food production. The Madison Park and Pleasure Drive Association has hired laborers to dig out over 25,000 barberry seedlings from its driveways. Both urban and country dwellers have vigorously battled the barberry during the last year.

In some instances bushes have been destroyed which had previously persisted in certain locations for over half a century. Birds have spread the barberry seed to neighboring farms and woodlands from infected premises. The campaign for barberry eradication was not begun any too soon, in the opinion of State and Federal specialists, as it is believed that in a few years more the expense of ridding the State of the pest would have been almost prohibitive.

Pure-Bred Bulls Exchanged for Scrubs.

A drive is being focused on the scrub bull in Wisconsin, and if the work of the "Better Wisconsin Campaign," which was launched under the direction of the State College of Agriculture, the United States Department of Agriculture, and the Live-Stock Breeders' Association, is successful, thousands of these mongrel animals will be replaced by pure breds. The retreat of the inferior sires already has begun in seven counties, while authorities in other counties are making plans for the crusade. The first gun to be fired in the Wisconsin campaign was in Fond du Lac County early in the year, when schoolhouse meetings were called by the county agent. At these meetings some of the leading breeders agreed to exchange pure-bred bulls for scrubs without additional cost, providing the new owners would use the pure breds for two years. This was farsighted business. They secured probably 60 or 80 per cent by the transaction, as they would lose in subsequently selling the scrub for beef, but it meant better stock in the future. A census of the cattle herds in the county was made principally by the pupils in the rural schools, who secured the names of about 1,100 owners of scrub and grade bulls. To each of these 1,100 a letter was written outlining the trade offer and inviting the farmer to meet with the committee heading the county campaign to discuss the proposition. Many farmers have availed themselves of the opportunity.

Georgia Has 8,678 Boys in Pig Clubs.

Swine worth half a million dollars were raised by Georgia pig-club members during 1918. Four years ago there were no pig clubs in the State, but under encouragement from the College of Agriculture and the United States Department of Agriculture 8,678 boys in Georgia are now enrolled in these organizations. Their beneficial effect on the swine industry of the State may be judged from a summary just received by the department from its pig-club agent in Georgia. Outstanding progress is reported as follows: "The increase in final value of hogs raised by pig-club boys in 1918 over those in 1917 was more than 56 per cent. Pig-club boys won 70 ribbons and $505 in prizes in the open ring at two Georgia fairs. The increase in number of pure-bred hogs raised by pig-club boys in 1918 over 1917 was more than 306 per cent. The State champion was the 11-year-old son of a 1-horse farmer who bought his pig at an auction sale for $37.50. She is worth $300 to-day. Six pig-club boys in one county will start hog farms in 1919. All of them began with one small pig."

To Learn Value of Cactus.

One of the most complete collections of prickly pear cactus species ever assembled has been gathered for testing at the plant introduction gardens of the United States Department of Agriculture at Chico, Cal. The collection consists of about 2,500 forms and varieties, which are being studied to determine their uses. Many species are of value for ornamental purposes, others furnish food for man, while probably the most important use, economically, is as forage for stock in arid sections. Spineless forms, of which there are about 30 now growing in the gardens, are suitable for this purpose. For five years in the past about 20 tons of spineless forms per annum have been distributed to applicants in the warmer sections of the country. Distributions have now been discontinued, as the plants are well established in the trade.

Find Laundering Will Kill "Cooties."

Entomologists of the Department of Agriculture, working in cooperation with the War Department, have found that the modern laundry, as now adopted for Army camps, affords a practical means of destroying "cooties" and other vermin, and that the usual processes of the Army laundry establishments are thoroughly adequate as methods of disinfection and disinsection. In an article soon to be published by a scientific society they describe experiments that established their conclusions and point out how laundry methods may be adapted to suit special cases.

Department Aids Citrus Fruit Growers.

The occurrence of mottle-leaf in California citrus orchards is an indication by the plant that the soil in which it is growing lacks some element of plant food. The investigations of the specialists of the Department of Agriculture have revealed the fact that this condition is more frequently a result of lack of humus in the soil than of any other single soil ingredient. As a result of these investigations, much interest has been aroused among growers in regard to the question of the humus content of the soils in citrus orchards, and many growers are using every practicable means at their disposal to increase the amount of decaying organic matter in the soil by the use of manures and cover crops. The department specialists have also conducted soil moisture measurements in citrus groves to determine the distribution and dissipation of water following irrigations and have studied the changes in plant behavior caused by varying amounts of available moisture in the soil during the intervals between irrigations. It was found that frequently all the water available for plant growth was removed from the soil before the next irrigation was made. The determination of this fact has resulted in a more frequent application of water to

orange groves on certain soils by many growers.

Progress with Blackleg Vaccine.

As a result of continued demand for vaccine for immunizing cattle against blackleg the Bureau of Animal Industry is enlarging its facilities for making this important preparation so as to meet all demands promptly. During the last year more than 4,000,000 doses of blackleg vaccine were distributed free to stock owners of the United States. The bureau is prepared to assist stockmen in preventing blackleg in their herds, both through printed information and through vaccine for properly immunizing cattle.

Loafers Put to Work.

After the Dunklin County (Mo.) Farm Bureau got after them last summer 150 loafers went to work in the harvest fields. Three weeks before the wheat harvest the county agent saw the necessity for extra labor and called a meeting of farmers and business men, who formed an "Anti-Slacker Organiaztion." Membership cost 50 cents, and the money was used for publicity and expenses of officers in rounding up the loafers. Through this organization, also, 20 State prisoners were secured for work in the harvest fields. They did exceptionally good work, it is reported, and every farmer who used them wanted an arrangement with the State Prison Board for their permanent services.

Farmers Respond to Emergency Needs.

A striking example of the way American farmers responded to the Nation's call for an increased production of much-needed food crops is the way one district in western Kentucky, embracing 16 counties, answered the wheat program of the State Agricultural College and the United States Department of Agriculture. In 1917 more wheat was planted in the district than ever before, and last fall there was a big increase in the acreage sown over the previous year. In 1917 there were 4,614 farmers in this district who planted 122,853 acres of wheat, upon which they used 2,663 tons of fertilizer. Last fall 8,039 farmers in the district planted 200,835 acres of wheat upon which they used 4,618 tons of fertilizer. In Floyd County, for example, the increase in the acreage of wheat sown last fall as compared to the fall of the previous year, was 1,119 per cent. In Pike County it was 1,465 per cent, and in Breathitt County it was 1,500 per cent. But the per cent of increase in Bell County is a puzzle to mathematicians. As far as anyone knows, there was not an acre of wheat in this county during 1917, but in 1918 forty-nine farmers sowed 172 acres. Now what percentage of increase is that?

Seeks Protection for Quail.

A resolution to secure legislation for the permanent protection of quail has been adopted by the farm bureau of Clinton County, Ill. The bureau took this action chiefly because of the value of the quail in destroying chinch bugs, other insect pests, and obnoxious weed seeds. As many as 400 chinch bugs have been found in a quail's crop. The quail is especially active in gathering bugs from hedge rows, bunches of grass, and other covers that are difficult to reach by burning.

New Lights on Bovine Tuberculosis.

Recent Federal investigations of tuberculosis under normal farm conditions continue to incriminate rodents, especially mice, as possible spreaders of the disease. Following are briefly the results of last year's studies on tuberculosis by experts of the Bureau of Animal Industry. Thorough cleaning of stables from which tuberculous animals have been removed has been shown to be of greater importance in making buildings safe for healthy animals than the use of chemical germicides. When the cleaning is properly and thoroughly done the quantity of disinfectant needed is relatively small. Mice which have ingested tuberculous material are especially to be suspected as possible spreaders of the disease, as tubercle bacilli multiply enormously in their bodies and are scattered freely with their feces. Results obtained again emphasize that this destructive disease would decline materially if relatively simple precautions against its spread were more commonly understood and practiced by owners of live stock. Among the principal measures urged by the bureau are sunny, well-ventilated barns, sanitary surroundings, application of the tuberculin test to all cattle when the health of the herd is doubtful, prompt removal of any animals which are affected, and the introduction into the herd of only such animals as are known to be free from the disease.

Grade Bulls Discarded.

The Garfield County (Colo.) Farm Bureau saved the farmers of the county $10,000 last year through cooperative buying of pure-bred bulls. The live-stock committee late in the summer of 1917 surveyed the county and found many grade bulls were being used on the range. During the winter of 1917–18 several meetings of the live-stock committee and the farm bureau as a body were held, and it was decided that only the best of bulls should be used on the range. A committee of nine was appointed to obtain orders and purchase the bulls, and through the county agent got in touch with large breeders throughout the United States. As a result 103 registered Shorthorn and Hereford bulls were shipped into the county.

Fertilizer Value Shown.

The Cattaraugus County (N. Y.) Farm Bureau conducted 15 fertilizer tests last year, using plots with lime alone, lime and acid phosphate, and acid phosphate alone. Check plots were used for determining results. Where lime and acid phosphate were used there was a profit of $15.94 an acre, and where acid phosphate alone was applied there was a profit of $15.42 an acre. Where lime alone was used there was a loss of $1.56 an acre, but the next year's hay crop should make up this loss and pay, in addition, from 150 to 200 per cent on the investment. In this county 31,000 acres of oats are grown annually. If 25 per cent of the oat-growing farmers would adopt the practice it is believed they would gain $87,265 a year.

Tile Drainage Boosts Values.

Sheboygan County, Wis., farmers received much benefit in 1918 from community tile drainage project conducted by the farm bureau and the county agent. Over 40 farms were visited, 88,000 feet of levels were run, and 70,000 feet of tile was laid, which reclaimed 75 acres of land. It is estimated that as a result of the land drained, the value of farm lands in the vicinity has increased $12,000. The project will be continued in 1919, and it is planned to reclaim 500 acres of land.

Mangum Terraces Save Soil.

Mangum terraces have been surveyed on 25 farms and the construction completed on 13 by the farm bureau of Cape Girardeau County, Mo., making use of a system started about 20 years ago. Mangum terraces are ditches running around a hill and built so that the water will not develop velocity great enough to carry the fine soil particles. The permissible fall is found to vary from 4 to 7 inches in 100 feet. The ditches are made shallow and the levees wide so as not to interfere with farming implements. The distance from the middle of the levee to the middle of the ditch is 6 or 8 feet, and the bottom of the ditch is 12 inches below the top of the levee. The land is farmed as if there were no terraces in the field. The water flows down the side of the hill until deflected by a terrace, then around the side of the hill, and runs off without doing much damage.

SWEET SORGHUM SEED MAY ADD TO FARMERS' INCOME

Demand Has Been Big for Some Varieties—Purity Essential

Department Specialists Tell How Heads Should Be Gathered and Protected—Advise Cooperation in Thrashing

Good, pure, viable seed of sorgo or sweet sorghum has been greatly in demand the last 2 years, and a little extra money can be realized by farmers in the sorghum belt, says the United States Department of Agriculture, if they will save the seed from their fodder and sirup sorghum varieties, especially if they have pure strains of such standard varieties as black amber, red amber, orange, sumac, honey, and gooseneck.

In addition to the demand for seed of these varieties for fodder and sirup production there is a limited demand by sirup producers for the seed of such varieties as Colman, Red X, Collier, and McLean. The average farmer, however, who is growing the sorgos primarily for forage purposes had best confine himself to some one of the first-named varieties.

The importance of keeping the varieties to be used for sirup production from mixing with other varieties is strongly emphasized by the department. The sweet variety from which seed for future planting is to be gathered should not be grown near any other sirup or fodder variety. Even then the seed heads should be carefully selected with a view to trueness to type or variety.

Gathering the Heads.

With fodder varieties one can go into a field of shocked fodder and gather the seed in paying quantities by cutting with a knife the heads from the bundles or from the individual stalks, if the fodder has not been bound. The heads can be thrown in piles at the base of the shock, after the practice followed in husking corn from the shock, but this entails considerable waste, and it is better to take a team and wagon into the field and throw the heads directly into the wagon box. If the field has been properly rogued and has ripened uniformly it is more economical for two men to work together and by means of a chopping block attached to the wagon box separate the heads from an entire bundle at one stroke.

The gathered heads should not be stacked in the field, but hauled into the farmyard and piled in long, narrow ricks in an open shed. Care must be used in storing the heads. Unless they are thoroughly dry when gathered, large quantities thrown together in a crib or bin are likely to heat and thus seriously impair their germinating power. The piles of heads should be examined at least every two weeks, and if any signs of heat develop they should be turned with forks to forestall damage. Where an open shed is not available for the protection of the ricked heads they may be piled in the open and covered with a tarpaulin or with bundles of fodder until they can be thrashed.

Allowing seed designed to be used for planting purposes to be wet by every rain and snow which comes is inexcusable even where wet periods are infrequent and the total amount of moisture likely to be small. Seed intended to be used for feeding purposes will not be injured to any considerable extent by a small amount of moisture, but wet seed, especially during a season when freezing temperatures prevail, will be rendered almost worthless for planting. Freezing temperatures do little injury to dry seed.

Neighborhood Cooperation in Thrashing.

A neighborhood can combine very effectively in the thrashing of sorghum seed, the heads being hauled to some central point where a "set" has been agreed upon. Care should be observed, however, to have the machine thoroughly cleaned, so that the varieties will not become mixed.

In marketing his sorgo seed the farmer, after having given his attention to the production of pure seed and the protection of it after the harvest, should avail himself of the assistance of his State experiment station and have germination and purity tests made of the seed as soon as it is thrashed. Information regarding the amount of sorghum seed available, the prevailing prices, and condition of the market are to be had in the Seed Reporter, published by the United States Department of Agriculture. This publication will be mailed regularly to farmers on request, and if such information is used intelligently it will enable the grower to obtain the full value for his seed.

CARBON DISULPHID EFFECTIVE IN KILLING WOOLY APHIS ON ROOTS

Carbon disulphid, in solution at the rate of one-half ounce to 4 gallons of water and applied at the rate of three-fourths gallon a square foot of soil, will control the root form of the woolly apple aphis and without injury to the trees under suitable conditions, says the United States Department of Agriculture, in Bulletin 730, recently published.

The solution is prepared by pouring the carbon disulphid into the water and agitating the mixture vigorously. When applied on the soil around a tree the liquid penetrates into the ground and the poison gas given off by the chemical kills the pest. Every square foot of infested soil should be subjected to the action of the solution in order to insure complete control. This may be accomplished by pouring the liquid in a shallow basin made in the soil around the tree.

In orchard practice, where many trees are to be treated, the solution is best applied by using a power spraying outfit and two auxiliary tanks. The advantages of this method, according to the bulletin, are the even diffusion of the liquid and complete aphid mortality in the soil area treated and the safety with which the disulphid can be used. The disadvantages of the method are: the huge amounts of water required, with consequent high cost of labor; the difficulty on any but level ground of preparing basins with level floors, thus insuring the proper distribution of the liquid over the area to be treated; and the wide area of infested roots on older trees, every square foot of which must be treated with the liquid. This last condition precludes the use of carbon disulphid except on small trees with restricted root areas.

Sodium cyanid, kerosene emulsion, and deep planting of trees were other measures of control investigated, but they are not recommended by the department.

FIVE NORTH DAKOTA COUNTIES MADE VERY UNHEALTHY FOR GRASSHOPPERS

Farm bureaus of five counties of North Dakota, by fighting grasshoppers last year, saved crops valued at $400,000. Slope County alone saved $80,000 worth of crops at a cost of $5,000.

It was seen that nothing short of an organized fight would stop the pests, so the county commissioners of the different counties were appealed to for funds with which to purchase poison and other materials. The money was voted from the general tax funds of the counties and the farmers were furnished with poison bran. The county money made it possible to purchase the materials in quantities and at much lower prices. The farmers soon saw that the poisoned bran, when properly used, was doing the work, and the county agents were kept busy tracing shipments of bran, molasses, and arsenic.

Farmers, many of whom would have been forced to give up their farms if this fight had failed, have expressed appreciation for the assistance given them by the county agents, and the counties and the county commissioners are said to feel that the money was well spent.

WOULD CONTINUE EXTENSION WORK DEVELOPED DURING WAR

(*Continued from page 2.*)

the continuation and development of the boys' and girls' club activities.

The value of the extension work as a means of aiding the farmers and their families in crop and animal production, the marketing of products, the making of the home and its environment more comfortable and healthful, and the promotion of a broader and more satisfactory community life has been so fully demonstrated that it is not necessary to emphasize the importance of perpetuating the organization and providing for its reasonable expansion to more completely reach all the people in the rural communities.

During the past year a million farmers have associated themselves with the farm bureaus, county councils of agriculture, and other organizations supporting the work of the county agents, and about half of these farmers carried on demonstrations on their own farms. Through visits to farms, meetings, and otherwise more than half the total number of farmers in the United States have been reached. At least 1,500,000 women have received instruction from the home demonstration agents, and 2,000,000 boys and girls have taken part in the club activities.

Farming Results Show Efficiency.

The increased production of the American farmers in 1917 and 1918 is sufficient evidence of the efficiency of the extension work. By means of the extension organization, with its agencies reaching into 2,400 out of approximately 2,850 agricultural counties in the United States, the Government was able to present to the farmers of every neighborhood, by intimate personal contact, the Nation's needs. Unquestionably the farmers of the United States were governed in large degree by patriotism, but it is not too much to say that they could not possibly have produced so intelligently if there had not been this organized system of information and assistance. The same system is no less needed in the immediate future than it has been under war conditions.

Considering the rapidity with which the work has been extended during the past year, I think it may be said that the States and the counties have done well in supplementing the Federal appropriations. The problem now is to hold all that has been gained which is worthy of a permanent place in this system of popular practical education. It would be most unfortunate not to make permanent the results of the extraordinary efforts of the people and their extension agents during the war as far as these results will contribute to the prosperity of our agricultural and country life in times of peace. It is believed that this can be done with the aid of the appropriation recommended for the demonstration work and such additional funds as we may reasonably expect to be contributed from State sources.

Probable Funds Estimated.

The Federal appropriations under the extension act will increase by $500,000 annually until 1922–23. It may be found desirable to decrease the appropriations to this department after next year by a similar amount. If this were done and the States continued to supply funds over and above those necessary to meet the requirements of the act, the amounts available for demonstration work up to 1923 may be roughly approximated in the following table:

Funds for Demonstration and Extension Work.

Years.	Lever funds.		United States Department of Agriculture.	State, county, and other.	Total.
	Federal.	State.			
1918–19	$2,530,000	$2,100,000	$7,304,940	$3,982,586	$15,967,526
1919–20	3,080,000	2,600,000	5,670,000	4,670,000	16,000,000
1920–21	3,580,000	3,100,000	5,170,000	[1] 4,650,000	[1] 16,500,000
1921–22	4,080,000	3,600,000	4,670,000	[1] 4,650,000	[1] 17,000,000
1922–23	4,580,000	4,100,000	4,170,000	[1] 4,650,000	[1] 17,500,000

[1] The interest of the farmers in the extension work is constantly increasing and it is probable that the amounts indicated under "State, county, and other," and consequently under "Total," for 1920–21, 1921–22, 1922–23 will continue to increase.

The supplemental estimate suggests that only 80 per cent of the appropriation be allotted for use in the States on the basis established in the extension act, in order that account may be taken of conditions in some States which may require special consideration and adjustment of allotments to make them most equitable. In addition to these adjustments, the unallotted 20 per cent would provide for the maintenance of the Washington extension office and the employment of a limited number of field agents, with headquarters in Washington, who will go into the States to assist in the organization and conduct of the extension work.

The final form of the estimate is as follows:

Omit, under the heading "States Relations Service," the following items:

For farmers' cooperative demonstration work outside of the cotton belt, including the employment of labor in the city of Washington and elsewhere, supplies and all other necessary expenses, $551,280.

For farmers' cooperative demonstrations and for the study and demonstration of the best methods of meeting the ravages of the cotton-boll weevil, including the employment of labor in the city of Washington and elsewhere, supplies and all other necessary expenses, $645,040: *Provided*, That the expense of such service shall be defrayed from this appropriation and such cooperative funds as may be voluntarily contributed by State, county, and municipal agencies, associations of farmers, and individual farmers, universities, colleges, boards of trade, chambers of commerce, other local associations of business men, business organizations, and individuals within the State;

and insert in lieu thereof the following:

For farmers' cooperative demonstration work through county, district, and urban agents and others, including the employment of labor in the city of Washington and elsewhere, supplies and all other necessary expenses, $5,670,000: *Provided*, That the expense of such service shall be defrayed from this appropriation and such cooperative funds as may be voluntarily contributed by State, county, and municipal agencies, associations of farmers, and individual farmers, universities, colleges, boards of trade, chambers of commerce, other local associations of business men, business organizations, and individuals within the State: *Provided further*, That no part of this appropriation shall be used unless eighty per cent thereof shall be allotted by the Secretary of Agriculture for use in the several States for farmers' cooperative demonstration work in the apportionment basis established in the act of Congress of May eighth, nineteen hundred and fourteen, entitled "An act to provide for cooperative agricultural extension work between agricultural colleges in the several States receiving the benefits of an act of Congress approved July second, eighteen hundred and sixty-two, and of acts supplementary thereto, and the United States Department of Agriculture," on the same terms and conditions of said act applicable to the allotments thereunder; *Provided, however*, That in the discretion of the Secretary of Agriculture payment of such allotment may be made to any State without requiring such State to contribute an equal amount; and all sums appropriated by this act which are used for demonstration or extension work within any State shall be used and expended in accordance with plans mutually agreed upon by the Secretary of Agriculture and the proper officials of the colleges which receive the benefits of the said act of Congress of May eighth, nineteen hundred and fourteen.

The proviso authorizes the Secretary of Agriculture to determine whether the States should be required to meet in full the amounts allotted to them, as in the case of the funds provided by the exten-

sion act of May 8, 1914. "I am in full accord," the Secretary says, "with the principle that the States should match the appropriations made by the Federal Government. At the present time, however, many of them are not in a position to provide sufficient funds to meet the proposed allotments in full, and it seems clear that, if such a condition is attached to the appropriation recommended, it would defeat in many States the very purpose the department and the agricultural colleges have in view. I think it is essential at this time to maintain in the various States the best part of the organization that has been created during the emergency rather than to allow it to be dismantled and then attempt to rebuild it in the coming years. It will be understood, of course, that as promptly as possible all the States should be required to provide funds to match those appropriated by the Federal Government."

Methods of Controlling Rootworm Of Corn Given in New Bulletin

The Southern corn rootworm is a regular visitor in the corn fields of the South and considering the seriousness of its destruction has few competitors. Progressive farming methods, such as crop rotation, enrichment of the soil, clean culture and timely planting of the corn are the best control methods, according to specialists of the United States Department of Agriculture, in Farmers' Bulletin 950, "The Southern Corn Rootworm and Farm Practices to Control It."

The Southern corn rootworm is the larva, or young, of the twelve-spotted cucumber beetle. The worm usually feeds on the corn roots, but in young corn it also drills a small hole in the stem just above the first circle of roots, boring out the crown and killing the bud. From its habits of attack it is more commonly known as the "budworm" and "drillworm." Corn planted in low lands and during cold, damp seasons suffers most from its ravages. The plants either die or are so badly stunted as to be unproductive. Very often weather conditions are blamed for the yellowish and sickly appearance of corn and the resulting poor yield of the crop, when in reality the true cause is worm infestation.

Although no one method has been discovered which, when applied, will eradicate this pest, certain farm practices when diligently carried out reduce its ravages.

Specialists advise farmers to burn over waste places to destroy dead grass, weeds, and rubbish in which the beetles spend the winter. If possible avoid planting corn in fields which contained corn the year before. Enrich the soil by planting legumes so that the corn will have a better chance of recovering from rootworm injury. Protect native birds, particularly the bobwhite, as these birds destroy many beetles of the rootworm. As there seems to be a period during which the worms are very active, timely planting to escape this is recommended. By careful observations extending over a number of years, find out the dates between which the rootworm does the most damage, then time the planting so that it will fall either before or after these dates.

PRODUCTION COSTS IN SUGAR-BEET GROWING GIVEN IN NEW BULLETIN

Sugar-beet growers will be interested in Bulletin 726, recently published by the United States Department of Agriculture, which is a report of farm practices in growing sugar beets in three districts in Colorado. The data presented in the bulletin are based upon 371 farm estimates obtained from representative sugar-beet growers in Otero, Morgan, Larimer, and Weld Counties, Colo.

Labor, including man, horse, and contract labor, was the most important item in growing sugar beets in these districts, according to the bulletin, and varied from 54.3 per cent to 59.1 per cent of the total cost of production. Charges for materials, such as seed, manure, and water for irrigation, varied from 8.6 per cent and 10.7 per cent of the total cost of production. Miscellaneous costs, such as interest on the land for owners and land rental for tenants, insurance, taxes, and machinery, make up 32.3 per cent to 35 per cent of the total cost of raising this crop.

The bulletin describes the best methods in vogue in the districts of preparing sugar-beet land, planting and cultivating the crop, blocking and thinning the plants, irrigating, harvesting, and hauling the beets to the factory. Copies of the bulletin may be had by applying to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Probably the best wash for apple-tree borers is a thick coat of paint made from raw linseed oil and pure white lead. Remove the earth for a distance of 3 to 4 inches from the base of the tree, scrape off the dirt and loose bark scales, and, after worming, apply to the exposed trunk a thick, uniform coating of paint to a distance of about a foot above ground.

DEPARTMENT STUDIES BEST WAYS OF USING FERTILIZERS

Test Fields Established to Supply Knowledge Needed Now

Big Change Comes in Composition of Materials Used in United States—Commercial Products Are Tested

The enormous fertilizer consumption in the United States, amounting to more than a hundred million dollars prior to the war, has undergone in the last few years a decided change, not so much in volume as in the composition of the fertilizing materials. This has forced a careful study of ratios of essential plant-food constituents on prominent and essential crops.

Test Fields Working.

Accordingly, small field plats for the study of fertilizers have been established by the United States Department of Agriculture on different soils and under different agricultural conditions. The test fields now in operation are at Presque Isle, Me.; State College, Pa.; Norfolk, Va.; Florence, S. C.; Pecan City, Ga.; Putney, Ga.; Thomasville, Ga.; Monticello, Fla.; Orlando, Fla.; Ashland, Wis.; and Scottsburg, Ind.

Special field tests have been conducted to determine the smallest quantities of potash which will meet the requirements of the tobacco plant, more especially on the lighter soils of the flue-cured district. Marked responses have been obtained with only 24 pounds, and even as low as 12 pounds, of potash per acre. These applications have sufficed to prevent the appearance of the characteristic symptoms of potash deficiency which the plant shows when no potash is supplied in the fertilizer. It has been possible also to establish an appreciable difference between the sulphate and the muriate of potash in their action on the plant.

Some Products Found Worthless.

The unusual fertilizer situation has brought forth numerous fertilizer substitutes of more or less doubtful merit for which extravagant claims are made. Companies are organizing to exploit fertilizer materials, concerning the value of which little is known, and a considerable increase in such test work seems necessary. Several such products have been investigated and tested by the department. Some of them are practically worthless and others have value entirely out of proportion to prices charged.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI FEBRUARY 5, 1919 No. 27

ADVISES HIGHEST PRODUCTION IF LOCAL FACTORS WARRANT

Department Discusses Probable World Demand For Food

More People in United States and European Markets Are Opening; Would Improve Farms Beyond Prewar Standard

Terribly devastated or disorganized conditions in much of Europe and the long time that will elapse before normal conditions can be restored must be taken into consideration by the farmers of the United States in arriving at a basis of sound agricultural practice, says the United States Department of Agriculture in a circular, Crops and Live Stock Production in 1919, just issued from the Office of the Secretary.

The world does not yet realize, it is stated, how stricken are the European countries and how long it will take them to recover to such an extent that they can make their former material contributions to the world's stock.

The European belligerents, exclusive of Turkey and the Balkan States, are estimated to have lost more than 7,000,000 men killed and more than 14,000,000 wounded, many of them permanently incapacitated, and a burden of great numbers of widows and orphans has been imposed. The destruction of property has been enormous. Industry has been disrupted. Over all of central Europe there has been a tremendous social upheaval that will entail years of struggle before orderly processes are permanently restored. The war debt of all the belligerents will range from $175,000,000,000 to $200,000,000,000, a per capita debt running from $700 in Great Britain to $200 in Italy.

America's Position Stronger.

In comparison with this, it is pointed out, the United States has issued from the war untouched and unhampered and with its relative industrial, financial, and social position stronger than it was five years ago. In view of those things the Department of Agriculture believes there is no need for alarm as to the ability of the United States to hold its due place in the trade of the world and especially as to the ability of agriculture to maintain its position.

The acreage of farm crops that will be planted in 1919 is problematical. The Department of Agriculture believes that, beyond doubt, the spirit of patriotism and general war conditions were responsible

(*Continued on page 4.*)

SOME ESSENTIALS IN AFTER-THE-WAR AGRICULTURE.

Now that farming is to be restored to a peace-time basis, the United States Department of Agriculture believes that many lands formerly devoted to pasture or meadow but recently used for emergency grain production should be reseeded to grass.

The signing of the armistice found the United States with relatively large supplies of foods and relatively small supplies of feeds, with much land somewhat impoverished by having been planted to grain year after year, and with a still urgent demand for meat and fats.

Numbers of all classes of live stock have been maintained. Those of swine and sheep have been increased, the former largely, the latter slightly. But the quantities of forage and pasturage for live stock have been diminished.

Sound agricultural practice demands, the department thinks, the reestablishment of regular and satisfactory rotations so that fertility may be restored and the live stock carrying capacity of the land increased.

Live stock, since it helps to retain fertility on the land, provides a profitable use for large amounts of roughage and gives employment to labor throughout the year, should find a place on a larger number of farms.

Diversified farming should become more general, to the end that each farm shall produce the necessary feed for its family and the necessary feed for its live stock.

Loss from preventable plant diseases should be guarded against by seed treatment and spraying.

Harvesting of fruits and vegetables before exposure to frost, and greater care during harvesting, packing, storing, and marketing, are urged, together with continued organized efforts for the prevention and control of diseases of animals.

SEVEN FRUIT PACKING HOUSES ORGANIZED BY FARM BUREAU

Marketing Problem in New York County Solved By Direct Action

Standards and Common Brand Adopted For Members of Association; Plan of Successful Movement Outlined

Seven central fruit-packing houses have been formed, incorporated, and are now working in Niagara County, N. Y., as a result of intensive work done by the Niagara County farm bureau cooperating with the New York State College of Agriculture and the United States Department of Agriculture. These seven associations this year will pack approximately 120,000 barrels of apples, 50,000 bushels of peaches, 12,000 bushels of pears, and will sell cooperatively 135 tons of grapes. At present prices the business will amount to about $800,000, but as most of the apples are going into storage to be held for higher prices the amount involved may reach the $1,000,000 mark.

The initial investment in packing houses and equipment, such as scales and graders, amounts to $25,700 and has been raised among 174 producers. All apples and peaches are being packed to a common standard, the rules and regulations for which have been made by the county association, and all will be marketed under a common brand. This brand is owned by the county association, so that it may be withheld from any local association that does not meet the requirements.

Four of the seven associations are entirely new. The other three have been operating continuously or intermittently

for the past four years. The four new associations were incorporated under the new membership corporation law which passed the State legislature during the last session. Two of the old associations have changed their form of corporation to conform with the new law, and these six are federated into a county association with an organization similar to that of the California Fruit Growers' Exchange. The other association of the seven is to chauge its form of corporation this winter and come into the county association.

How were the fruit growers convinced that marketing associations were the thing needed to dispose of their crops profitably? The farm bureau made itself familiar with the facts of the situation and so presented them to the fruit growers that they were convinced their only course was to organize.

To begin with, farm-mangement records of representative farms in one of the towuships of Niagara Conuty, covering five years, and showing that during that period fruit growers did not make a farm-labor income comparable with the average of the State, were laid before the executive committee of the farm bureau early in March. Prof. R. W. Reese, of the department of pomology at the college of agriculture, was also called in to help decide what should be done.

Conference of Fruit Growers.

The farm bureau executive committee called a conference of prominent fruit growers from each section of the county. At this conference the committee recommended that central packing-house associations for the purpose of grading and marketing fruit in such a way as to obtaiu the confidence of the public be established.

As a result of this conference a local represeutative, in each case a farm bureau committeeman, was appointed from each loading station iu the county.

Each local representative called a meeting of frnit growers iu his home town. The county agent attended this meeting and outlined before the fruit growers the work already accomplished and that still remaining to be done. In each case the meeting euded with the appointment of a special farm bureau committee to investigate the possibilties of a central packing house for that loading statiou, and if possible to form a local association.

The farm-bnreau committee, actiug in cooperation with the county agent and specialists on central packing houses from Ithaca and the State of Washington, bronght iuto the locality by the farm bureau, gradually evolved the new associations or perfected the old ones. The bureau of cooperative association for the State Department of Agriculture assisted in the iucorporation of the local associations.

County Association Incorporated.

The incorporation of a county association for the purpose of insuring the quality of the fruit packed at local associations was the next step. Standard quality was assured by permitting each local association to use the county brand and label only so long as it complied with the county association's regulations in regard to the grading and branding of the fruit packed. The county association also provided central machiuery for handling, advertising, transportation, aud other work.

The establishment of the Central Fruit Packers' House in Niagara Couuty indicates what farm bureaus can do and are doing throughout the country to meet the special problems which arise in each community. The farm bnreau, by mastering the facts of the case through the agencies always at its commaud, was able to arrive at a solution of the marketing problem which confronted Niagara Connty fruit growers.

WHERE CROPS CAME FROM.

To the total crop valne of the five years 1910–14, the geographic divisions contribute the followiug fractions: The North Atlantic States (from Maine to Pennsylvania), 11 per ceut; South Atlautic, 15 per ceut; North Central, east of the Mississippi River, 18 per cent; west North Central, 23 per cent; total North Central, 41 per cent; south central, 23 per cent; and far Western, 10 per cent. Total for the Nortb, 52 per cent; for the Sonth, 38 per cent; Atlantic coast, 26 per cent; Mississippi valley, 64 per cent; Mountain States and Pacific coast, 10 per cent. Measured by value alone, the crop importance of the Atlantic coast is more than one-quarter of the total, of the Mississippi valley nearly two-thirds, and of the far West one-tenth.

The great desirability of keeping insects reduced by modern orchard practice, as fertilizatiou, thorough cultivation, and attention to pruning and other operations, can not be emphasized too strongly and is well appreciated by most progressive and successful growers.

Iowa aud Illiuois produced 28 per cent of the corn crop iu 1918, and these States and Indiana, Missouri, Ohio, aud Nebraska produced about one-half.

CARELESSNESS CAUSES MOST FIRES IN NATIONAL FORESTS

Strong Laws and Proper Safeguards Advocated By Forest Service

Cooperation From Campers and Others in Woodlands Asked to Help Reduce Losses in Life and Property

Much of the euormous losses in human life and property caused by forest fires can be averted by proper preventive measures. To prevent fires Forest Service officials believe it is necessary that suitable laws be passed and strictly enforced, and that all settlers, campers, construction crews, and citizens iu or near forests should cooperate to see that laws are enforced and otherwise aid in preventing fires.

On the national forests, comprising 155,000,000 acres, representing 28 per cent of the timber resources of the country, the fire situation is fairly well in hand. Each year, through educatioual and publicity activities, as well as stricter enforcement of laws and regulations, sees a reduction in the number of fires through human agencies. To approach perfection in forest-fire protection, however, it will be necessary to eliminate entirely all fires caused by human agencies. There is still much to be done along this line. Nearly three-fonrths of tbe fires that occur in the national forests are due to carelessness.

Must Protect Forests.

Without full cooperation ou the part of the public that uses the national forests and the railroads that traverse them progress is necessarily limited by the appropriations for fire preventiou and fire fighting. If due precautionary measures are uot exercised by the public in using the forests increased appropriations will be necessary. These vast national resources must be protected—the burden on the public in protecting them will be less if the public will cooperate.

In some States laws have been passed reqniring all campers to extinguish fires built in forests before leaving their camps. In the National Forests, which are visited annually by large numbers of campers, a strenuous endeavor is made to eliminate the unextinguished camp fire by means of personal appeals, posting fire-prevention signs, and various educational and other measures.

Clearing By Burning.

Land adapted to agricultural uses frequently can be cleared most economically

by the use of fire, provided proper safeguards are taken, but the burning should be done when the forest is not too dry and when there is little or no wind. No more should be burned at once than can be adequately watched. Winds come up suddenly and small fires may "run away" and get beyond control. Fire guards should always be constructed to prevent danger of the fire spreading to adjoining land. A watched fire can be stopped by a fire guard of a few inches of ground from which all inflammable material has been scraped, but a "wild" fire may leap a broad river.

If every man working in the woods will recognize his personal responsibility in protecting the timber from fire, the Forest Service says there will be fewer fires and the damage done by those which start in spite of all precautions will be restricted.

DEPARTMENT AND Y. M. C. A. TO SEND FARM EXHIBITS TO SOLDIERS ABROAD

The Department of Agriculture has agreed, with the National War Work Council of the Young Men's Christian Association, to prepare four sets of agricultural exhibits, each to consist of about a carload of material, to be sent to France about February 15 for the use of the War Work Council in its work of bringing agriculture to the attention of the American soldier in the general educational service which the War Work Council is conducting.

There will be four sets of exhibits, each substantially the same, so that they may be used on four circuits of the camps throughout France, each to be under the direction of an expert from the Department of Agriculture, with assistants furnished by the War Work Council.

The exhibits will consist of material representing the activities of the following bureaus and offices: Weather, Plant Industry, Farm Management, Animal Industry, Public Roads—Division of Rural Engineering, Forest Service, and States Relations Service. The exhibits will be maintained in France as long as the War Work Council may desire within the period of 12 months.

ARMY SUPPLIES NOT EXPORTS.

By those who use the export statistics of this country, it is important to know that the reports of exports do not include supplies carried on Army and Navy transports for use of our expeditionary forces abroad. However, supplies carried on vessels other than those mentioned or sent abroad by the Red Cross or other agencies are included in the domestic exports of the country.

TEAMWORK SHOWS WAY OUT IN NEW ENGLAND HARVESTING

Thrashing Time With No Thrasher Made Situation a Serious One

Farmers Who Increased Grain Acreages Contract With Men Who Save the Crops—Some Lessons They Learned

Increased acreages of wheat meant immensely less in the land of header barges and flouring mills than along the North Atlantic coast, where the few acres of wheat grown are likely to be thrashed with the old-fashioned flail on a barn floor.

Typical of New England's efforts to meet the call for more small grains is the experience of a section of Tolland County, Conn., situated chiefly in the towns of Columbia and Lebanon.

Farmers in the town of Columbia responded to the call for increased grains with additional acreages amounting to 200 per cent of wheat, 133 per cent of barley, 30 per cent of oats, and 28 per cent of buckwheat. Having attended to the sowing, they forgot the aftermath. But the farm bureau of Tolland County made a careful survey of all grain binders and thrashers in the county. There were binders and thrashers, but—would they work? The farm bureau got the State agricultural college to send a specialist to examine them. He shook his head. Among the antiquated specimens he could not find a thrasher that could be guaranteed to run. The farm bureau called a meeting.

Attending this meeting were two young chaps from the town of Lebanon, John C. Hinrichs and F. H. Wyant, who were operating Wyantic Farm and building up a pure-bred dairy herd. Two years previously, when fresh from the city, they had raised several acres of wheat that promised a big yield, but that rotted in the field because they could not get a binder or a thrasher.

A Way Out Found.

Efforts to organize a company to purchase a thrashing outfit seemed destined to failure, when Hinrichs and Wyant went outside to talk. They came back with a proposition that they would buy a separator, supply their own gasoline engine, and thrash the grain at a cost of 9 cents a bushel with a minimum set-up charge of $9. Where the grower supplied power, the charge was to be 7 cents a bushel and $5 minimum. The committee was to guarantee 100 acres and was to route the work to minimize delay. The committee accepted the plan.

"We probably have about two weeks' work to do yet," said Mr. Hinrichs on December 26. "We shall just about pay out on the thrasher this year and own it clear. But if I were going to do the thing over again I would insist on making out my own routing. With several men on a committee you are likely to get some inconsistencies. We passed right by one man who had 20 acres of grain. I do not know of any reason why he was overlooked, unless some member of the committee did not like him."

It is necessary to have strict rules and to observe them if you expect to get the most efficient results out of community thrashing, he says. He would establish a date for ending the season and quit at that date regardless of whether he had reached everybody. He finds that some men with little dabs of thrashing to be done are inclined to put it off to suit their own convenience.

Mr. Hinrichs prefers to use his own gasoline engine. There is considerable delay, he finds, when farmers attempt to supply power and fuel. The thrashing operations called Mr. Hinrichs from 12 to 15 miles away from home at times, and he feels that this is as large a radius as should be attempted.

Sees Need for Binding.

One of the points on which he is very decided is that of binding the grain.

"If the New Englander is going to raise grain he must arrange to have it cut with a self-binder," he insists. "I thrashed two jobs of wheat right alongside. One was bound and the other was loose. One man got 23 bushels and the other got 7½ bushels. The amount of straw was the same, but the first man had cut and raked his wheat and the other had bound his. Examination of the straw stack where wheat had been cut and raked showed that at least 50 per cent of the grain was in the stack."

Mr. Hinrichs had thrashed grain on 35 farms when he made these statements. Most of the grain, of course, had been oats, although there had been some wheat, some barley, quite a little buckwheat, some rye, and a few bushels of speltz. Most of the men, he found, were planning bigger acreages next year of small grains, chiefly oats. The committee plans to contract again with Hinrichs and Wyant, and many of the farmers are urging that a binder be purchased and managed in the same way.

The experience of the communities of Columbia and Lebanon is vital to grain growing in New England. Few men raise enough grain to warrant owning binders and thrashers and there is little likelihood that many farmers will care to raise more grain than is needed on the home farm. Cooperation is the way out. If there is not sufficient sentiment in favor of community ownership of a thrasher,

and perhaps a binder or two, there is still the chance of making a community contract with an individual, as was done by the towns of Columbia and Lebanon. The competitive plan will fail except where there is enough grain grown to tempt commercial thrashermen.

The farm bureau solved the pressing local problem. The farm bureaus of Tolland County and of other New England counties must be depended upon to work out the bigger and more general problems of the future of grain growing in New England, whatever the solution of those problems may be.

ADVISES HIGHEST PRODUCTION IF LOCAL FACTORS WARRANT

(*Continued from page 1.*)

for the large acreage in 1918. The fact that the stability of prices for farm products will be more or less in doubt will influence the planting program for 1919, it is thought.

It is pointed out, however, that the population of the United States has increased during the war, that European markets are opening up for American products, that a considerable demand from Europe for foodstuffs will continue for a year or more, and that, in view of these facts, American farms should maintain as high production as local economic conditions and sound individaul farm practice will permit.

Under stress of war-time conditions, it is said, much grass land was devoted to grain which should now be restored as pasture or meadow to the end that more live stock may be kept, the supply of humus in the soil restored, and general fertility increased.

Department Pledges Help.

All of this is in the way of restoring the farms to the condition in which they were prior to the strain of war, but the department urges other practices which, if more generally adopted, would improve the agriculture of the country over prewar conditions. Among these are guarding against preventable plant diseases by seed treatment for cereals and potatoes and spraying for potatoes and fruits; the harvesting of fruits and vegetables before exposure to frost; the exercise of care in handling to avoid bruising; sorting to remove diseased and injured specimens before decay can spread; storage under conditions that will prevent the development of storage rots; continued organized efforts for the prevention and control of such animal diseases as hog cholera, tuberculosis, contagious abortion, dourine and tick fever; and the eradication of predatory animals and rodents.

The continued active assistance of the Department of Agriculture in solving these problems is pledged.

Federal Grain Grading Complimented; Three Inspections Get Same Results

One hundred and two cars of wheat, inspected out of St. Louis and shipped to Baltimore, and twice inspected in the latter market—once by the Chamber of Commerce Inspection Department and once by the Office of Federal Grain Supervision—and the three inspections corresponding within 0.3 of 1 per cent as the greatest variation—this is the record reported by W. H. Hayward, president of the Baltimore Grain Exchange.

The Bureau of Markets of the United States Department of Agriculture was advised of the incident in a letter from Mr. Hayward, who is also president of the Baltimore Chamber of Commerce, to Charles J. Brand, chief of the bureau, a copy of which follows:

"Our chief inspector, David H. Larkin, called my attention to-day to a rather significant fact. One hundred and two cars of wheat, shipped from St. Louis to Baltimore, were recently inspected here. Samples were drawn by our chamber of cemmerce inspectors, and at the same time duplicate samples were drawn by your supervisor in charge of the Baltimore office. On a comparison of the inspection results it was found that all of the 102 cars graded identically the same by all three tests—that is, the St. Louis grades, your supervisor's grades, and our Baltimore Chamber of Commerce grades agreed in every particular, the highest variation in any factors of the grades being, as I was informed, 0.3 of 1 per cent, this variation not affecting the grade in any sense.

"It seemed to me this is a compliment to the correctness of the application of the grade requirements all around."

Until the establishment of Federal grades for wheat and Federal supervision of inspection a year and a half ago and for shelled corn two years ago uniformity between markets was impossible. The grade requirements varied in the different markets and inspection systems were different. The result was great uncertainty as to what a buyer in one market would get if he bought wheat or shelled corn in another market. This necessarily had a bearing on prices and in turn reacted clear back to the farm.

But with uniformity of inspection between the various markets becoming a reality, confidence in the integrity of the grades, especially in the export trade, will result in business being done on smaller margins, because of reducing the risk, which will tend toward stabilizing prices.

CIVIL-SERVICE EXAMINATIONS.

The United States Civil Service Commission announces an open competitive examination for assistant in agricultural technology, qualified as instrument maker, for men only, on April 1, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, and other branches of the departmental service in Washington, D. C., at entrance salaries ranging from $1,200 to $1,800 a year, will be filled from this examination. Applicants should apply for Forms 304 and 2029, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

On March 4, 1919, an open competitive examination for elevator machinist, for men only, will be held. A vacancy in the Department of Agriculture, Washington, D. C., at $900 a year, and future vacancies requiring similar qualifications, at this or higher or lower entrance salaries, will be filled from this examination. Applicants should apply for Form 1800, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

CURRANT INDUSTRY PROMISING.

Department of Agriculture specialists see no reason why high-grade currant grapes can not be grown in California and thus produce the supply necessary to meet home needs. Heretofore under normal conditions an annual importation of from 30,000,000 to 35,000,000 pounds of dried currants has been made from Greece. Methods of culture and handling this crop have been worked out by the United States Department of Agriculture, and commercial plantings of currant grapes are being made in the raisin-producing areas on the western coast, with every prospect of developing a profitable currant industry.

Although spraying is one of the most expensive of orchard operations, the value of the crop is so greatly increased thereby that it is a comparatively small investment, the expense amounting to only a fraction of the returns directly due to the practice. Orchard spraying is, in fact, an exceedingly cheap form of insurance.

AID IN AMERICA'S "BELGIUM" GIVEN BY FEDERAL WORKERS

Home Demonstration Agents at Work After Fire-Hun Swept Through

Many in Stricken Minnesota Counties on Rations Supplied by Relief Committee; Keeping Up Spirits Until Spring

How can you provide decent and healthful sleeping accommodations for a man, his wife, five children of both sexes (the oldest 14), and a hired man in a 12 by 16 cabin with a 10 by 12 kitchen lean-to? Or how would you house a man, his wife, and three children in a 12 by 16 cabin and leave room for cooking and sleeping?

Problems of this type are what the home demonstration agents of the U. S. Department of Agriculture and the State agricultural college are called on to solve this winter in the Minnesota counties swept by forest fires last fall. In 24 hours thousands of acres were laid waste and hundreds of people were left homeless. Results of a lifetime's work were licked up by the flames, and the industrious people who had lived in this region and escaped from the fire with their lives were left with only bare, cinder-covered acres. The memories of the horror stunned them, and their grief over the deaths of scores of friends and relatives who could not escape paralyzed their efforts to readjust themselves.

System in Relief Work.

As rapidly as possible, after the first emergency relief work was brought to a close, a thorough study of each family was made, and a definite policy of relief, suitable to its needs, established. The temporary relief now lies largely in the hands of the home demonstration agents in the counties. They know the people of their districts, their conditions before the fire, and their needs now. Aside from this, their home science training is much needed, both in the temporary and permanent work being carried on.

On request a definite scheme of rationing was devised by the extension department of the University of Minnesota. The county demonstration agents were given rationing cards, and they worked out definite amounts for families to be given permanent rations.

Families found with no other means of subsistence through the winter have been permanently rationed until spring. But this is a last resort measure because of the danger of pauperizing the recipient family. Only when no able-bodied man is left are permanent rations given.

Milk Assured for Children.

The policy finally adopted by the relief committee gives a cow outright to refugee families with small children and no cow. This was done to safeguard the health of the children.

In families with able-bodied men, necessities such as farm machinery, seeds, and building material, are supplied, but the family is not rationed. However, there are enough families living on a balanced ration, and who will learn its value, to exercise a lasting effect on the community. The women who are receiving rations are evidencing much interest in the foods selected for them, and asking why they were chosen. Many who would be too conservative to try new and better ways of feeding their families are doing it now of necessity.

Few permanent homes have been rebuilt, both from lack of money and of building materials. There is a dire need of cupboards, chests of drawers, and wardrobes in the shacks which have been hastily erected.

This now is the land of the trundle bed and pullman berth, of curtain partitions and ladder stairways. The results are often laughable, but what is more important, they are workable.

New to Crowded Living.

The people who are compelled to live in these tiny shacks—often five to ten in a shack—are Americans who are accustomed to plenty of room in their homes. They are not denizens of the slums hardened to living, sleeping, and eating in a crowd. The depressing living conditions, together with the frightful desolation, the mortality and the awfulness of the losses, are getting on some of the women's minds. Many already are broken and more would be, except for the efforts being made by the home demonstration agents to help them readjust their home life and to give them encouragement and sympathy.

The atmosphere of the region, however, around Christmas was a generally depressed attitude toward life, not surprising after what had been endured.

The stricken families planned no holiday festivities, and because no interest was being shown in Christmas the home demonstration agents adopted the slogan "a Christmas for every child in the burned area." Appeals were sent to children in the near-by States and the result was remarkable. A bountiful supply of toys, warm clothes, and goodies poured in for distribution.

Christmas Becomes Real.

The grown-ups were asked to help distribute these glad surprises, and in some way innumerable impromptu parties sprang up. Not only did the children have a Christmas, but their elders caught the spirit, threw off their desperation, and have been better for the little change ever since. But more social life is needed to hearten the trying months of inaction until spring. This need is recognized and plans are being made to supply some of it by the reconstruction committee, composed of the home demonstration agents, the county agents, members of the farmers' clubs, and Red Cross representatives.

One of the projects being carried out is to bring some music into this district, in which every musical instrument was destroyed. Arrangements have been made with Duluth musical organizations, and members have volunteered to accompany the agent on trips through the burned area.

The meetings necessarily will be small, for not many can get into the tiny emergency cabins to hear those who come to give their songs, but even half a dozen cheered-up souls in a neighborhood will do much toward dispelling the sense of loss and discouragement.

In spite of sorrow and loss, the people are manifesting the spirit of courage and persistency which enabled their fathers to conquer in the pioneer days. With the coming of spring and the opportunity to do more general reconstruction, the gloom in the district will lighten. Meanwhile, the relief committee is doing all it can to make the people fairly comfortable and to keep up their spirits.

CARL VROOMAN RESIGNS POSITION AS ASSISTANT SECRETARY OF AGRICULTURE

Carl Vrooman, Assistant Secretary of Agriculture, who accompanied the Agricultural Commission sent by the department to Europe, has tendered his resignation, which has been accepted by the President. Mr. Vrooman has not been in very good health for some time and desired to be relieved of his duties so that he might remain abroad until he has fully recovered.

Before the entrance of the United States into the war there was only one Assistant Secretary of Agriculture. The food production act of April 10, 1917, authorized the appointment of two additional assistant secretaries during the emergency. It is probable that provision will be made in the regular appropriation bill for 1920, which is now under consideration by the Congress, for not more than two assistant secretaries. As the department now has two assistant secretaries and as the emergency has passed the existing vacancy will not be filled.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Extension Men, Strengthened by 1918 Achievements, Turn to This Year's Tasks

IT PAYS A FARMER TO FOLLOW THE COUNTY AGENT'S ADVICE

If John Wilcox, of Timmonsville, S. C., had not followed the advice of his county agent it is more than likely he still would be on his old place farming in a more or less profitable way. As it is, this farmer, after bringing his stock and his acres up to the point of worth - while production, has sold his farm in Florence County at a price much larger than he gave for it, and has bought a better farm.

In a recent letter to the States Relations Service Mr. Wilcox comments appreciatively on the assistance given him by his county agent. He says:

"Two years ago Mr. McLendon came to my farm and found that I had among the cows that I was keeping some of good milking type from which I was not realizing one cent except fertilizing value. He persuaded me to milk the best of these cows and to turn the poorer ones into better milkers. He helped me to erect a convenient but inexpensive line of stalls and a milk house. After we had added a few cows I kept account of one month's sale of dairy products, and it amounted to $200, besides the skimmed milk I retained for my pigs. I purchased a registered Guernsey bull, two registered cows, and built a silo. About that time I purchased some registered Duroc hogs, and to-day in addition to my grade hogs for pork I am keeping 42 registered brood sows and gilts and have on my farm 115 registered hogs. The county agent has assisted in double-treatment of all hogs against cholera, and has helped me to plan my pastures and hog houses.

"I plant clovers, velvet beans, soy beans, and a great deal of rye and other grain. I feel that the profit realized on my farm is much greater than it would have been if we had had no county agent, for I have called upon him in many cases of trouble and found him willing to respond when not too busy with other farmers."

Mr. Wilcox is determined to have everything properly planned on his new farm and has requested the county agent's advice in constructing his buildings and laying out his pasture lands.

COUNTY AGENT THE SERVANT OF PEOPLE OF HIS COUNTY.

The county agent is the servant of the people—all the people in the county. He must not allow himself to be made the tool or convenience of a few selfish or influential citizens. This point is constantly impressed upon agents by the administrative officials in the work. In order to serve all the people in a county the agent must work through local organizations, developing rural leaders as rapidly as he can, who can help him in his work. Where there are no local organizations the demonstration plot is used as a community center, being the medium through which gatherings of farmers can be promoted. Free from the influences that come from the support of educational measures by private funds, the county agent in the South is a public servant, supported by public funds, doing educational work of the biggest kind, and is reaching the people that need to be reached.

The United States Department of Agriculture, in cooperation with the agricultural colleges, State departments of agriculture, counties, and other associations within the State or county, has been developing a system of education for the country people on the farms and in the homes, the objects of which are:

1. To project agriculture and rural life on a higher plane of profit, dignity, and influence; and, to that end,

2. To disseminate the information in the hands of the agricultural colleges, experiment stations, the Federal Department of Agriculture, and the best farmers in such manner as to have this knowledge put into practice on every farm. Fourteen years' experience in developing this system of instruction leads to the adoption of the following fundamental principles:

1. That it requires personal contact between the teacher and the one to be taught to bring the best educational results.

2. That examples or demonstrations worked out by the farmer on his own farm under careful plans and instructions are most effective means of instruction.

3. That centers of influence and strong personal leadership are essential in any broad system for educating the masses outside of schools.

BRADFORD KNAPP, Chief,
Extension Work South,
States Relations Service.

DRAINAGE COST SHOWN.

The county agent in Elkhart County, Ind., on checking up the Stutzman drainage demonstration, which covers 80 acres of land, with lines of tile laid 5 rods apart, found that 1,610 rods of tile was laid at a cost of $1,504.50. This included cost of tile, hauling from railway to the farm, trenching, laying, and all other expenses, except filling the trenches.

BIG PRODUCTION INCREASE CREDITED TO COUNTY AGENTS, NORTH AND WEST

During the year closing December 31, 1918, 1,100 county agents in the Northern and Western States conducted 74,710 demonstrations and held in connection with these demonstration meetings involving a total attendance of 661,000 people. A total net profit due to increase on the demonstration areas alone amounted to $21,851,000. This does not include the indirect results from those who put the lesson of demonstration into effect on their own farms, involving a much larger figure.

The agents assisted 323,125 farmers in selecting seed corn for the fields and 513,000 farmers in testing their seed for germination. Under the direction of the agents more than 10,500,000 acres were planted with tested seed; more than 2,000,000 acres of wheat were grown following the agents' advice; 97,315 farmers treated their seed oats for smut involving an acreage of nearly 2,000,000; 23,900 farmers treated their potatoes for disease involving an acreage of 124,000; 15,335 farmers began the growing of alfalfa; sweet clover was introduced on 5,000 farms, soy beans on 10,000 farms, and cow peas on 1,100 farms; 14,000 orchards were cared for following the agents' suggestions; 32,400 farmers were given assistance in the growing of beans involving 500,000 acres.

In War Food Campaigns.

War food production campaigns were given special assistance by county agents through the location and furnishing of farm seeds. Of special significance was

the locating of spring wheat for 48,000 farmers, winter wheat for 28,000, oats for 14,000 farmers, corn for 219,000, rye for 11,000, buckwheat for 2,100, barley for 6,100, sugar beets for 1,700, potatoes for 9,200, beans for 4,600, cane or sorghum for 9,100. This involved a total amount of seed of all kinds of 4,250,166 bushels.

As a result of such work the spring wheat acreage was increased by nearly 1,500,000 acres, winter wheat by 2,717,000 acres, oats by 182,000 acres, corn by 597,000 acres, rye by 257,000 acres, buckwheat by 17,000 acres, barley by 122,000 acres, sugar beets by 31,000 acres, beans by 40,000 acres; the production of spring wheat was increased 21,000,000 bushels, of winter wheat 23,676,000 bushels, oats 4,824,000 bushels, corn 12,065,000 bushels, rye 1,651,000 bushels, buckwheat 324,200 bushels, barley 2,817,000 bushels, sugar beets 548,000 tons, potatoes 2,139,000 bushels, and beans 332,000 bushels.

Work For Better Live Stock.

In connection with live stock the agents secured for farmers 237 registered stallions, 5,117 registered bulls, 8,770 registered cows, 3,113 registered rams, 6,810 registered boars, while more than 10,000 registered sires were transferred from one community to another, thereby lengthening the period of service. Cow-testing associations numbering 1,400 were organized, and through these associations and through associations previously organized more than 125,000 cows were under test, and 5,200 cows were discarded as a result of tests during the year; 387 live-stock breeders' associations were organized, with a membership of 139,000; 73,000 animals were tested for tuberculosis, 389,000 were treated for black leg, and nearly 500,000 hogs were vaccinated for cholera by veterinarians or farmers at agents' suggestion; 22,873 additional cows were bred as a result of special campaigns conducted by agents; 198,948 sows and 225,566 sheep were placed on farms; 29,000 calves were saved from slaughter.

The number of livestock kept on farms as result of special work of the agents was increased as follows: Cattle, 126,720; hogs, 938,477; sheep, 368,407; poultry, 1,067,430.

Other Work Summarized.

Assistance in securing farm tractors was given 5,346 farmers; 214 public markets were established through which were marketed $14,137,000 worth of farm products; 9,985 farmers were assisted in securing credit for the purchase of machinery, seeds, fertilizers, etc., and 328 farm-loan associations were organized.

Information in regard to the storing of fruits and vegetables was given 154,000 farmers; 3,202,600 quarts of fruits and vegetables were canned as result of county agent work, exclusive of boys' and girls' club work; 7,900 canning demonstrations were held for adult women; 752,000 pounds of fruit and vegetables were dried as result of special-drying campaigns; and 514,000 dozen eggs were preserved.

More than 8,000 silos were erected, 4,700 crop rotation systems were planned, 7,964 drainage systems were planned involving 362,000 acres, and 318 irrigation systems were planned involving 280,000 acres.

Assistance in starting to keep farm accounts was given 49,000 farmers, while more than 17,000 kept such accounts through the year; 150,101 laborers were furnished the farmers through county agents and farm bureaus, while more than 114,000 people applied to the county agents for work.

The value of business done through cooperative associations and exchanges organized by agents amounted to $28,762,134, involving a net saving to the farmers of more than $3,000,000.

FARM BUREAU DEVELOPMENT NEEDED TO AID MARKETING.

Farmers regard assistance in marketing farm products equal in importance with the assistance given by the State and National extension forces in producing food. This is brought out in practically every farm bureau meeting. The farm bureaus, therefore, are planning on giving special attention to cooperation in marketing the coming season. It is thought that unusual attention must be given this subject if farmers are to secure returns sufficient to cover the high cost of production during the period of decreasing prices likely to follow the war and meet the world situation as it is.

Europe is hungry—has been hungry for four years. Now that peace has come and armies and war workers are in large part being released it is natural to suppose that in an effort to get food in quantity and at a reasonable cost Europe will grow it to the maximum of its ability. This would seem to be especially true of the central empires, whose trade relations with the outside world have been destroyed without immediate prospect of being renewed. Until the industries of those countries can get on their feet again, it would seem that much of the labor previously employed in them would be available for agriculture. It is understood also that Australia, Argentina, and the Indies are prepared to furnish their quotas of food supplies to Europe.

Meanwhile, the farmers of the United States in growing food will be using labor, machinery, and supplies that are abnormally high priced, and with no positive assurance that they will get back the approximate cost of production, except in the case of wheat, and this only for the 1919 crop.

There is every reason to believe that notwithstanding the high cost of labor, machinery, seeds, feeds, fertilizers, etc., the farmers of the United States will continue to grow the normal amounts of agricultural products. But because of decreased war needs and increased production in European countries, the farmers will need to give special attention to cooperation and efficiency in standardizing, grading, and marketing, if they are to be able to sell their products at prices that will equal the cost of production.

Fortunately, the farmers in their farm bureaus and similar extension organizations throughout the country have an agency for effective organized cooperation with each other and with the Federal Department of Agriculture and State governments in studying problems of production and marketing which will greatly aid in meeting the situation. At this time, therefore, no effort should be spared by farmers to strengthen these county farm bureaus and other county extension organizations for the efficient handling of problems of agricultural production and marketing and for availing themselves of the help of the State and Federal governments along both of these lines.

C. B. SMITH, Chief,
Extension Work North and West,
States Relations Service.

The farm bureau of Rockingham County, N. H., as an experiment in beef cattle finishing, bought and disposed of four car loads of Hereford steers from Texas. Local banks helped to finance the transaction. Farmers who bought the steers agreed to keep records that may be of use in determining whether it will be worth while to carry the experiment farther.

On June 30, 1918, there were 791 farm bureaus in the Northern and Western States with a membership of 290,000, an increase during the year of 516 county organizations and 193,260 in membership.

COUNTY AGENT HELPS SELL HORSES.

Following the advice of the United States Department of Agriculture and taking advantage of the good offices of their county agent, farmers in Wilbarger County, Tex., recently sold 79 horses and mules direct to the Government. The stock brought $15,025, an average of $190 an animal. By eliminating the middleman, they obtained better prices, about $40 a head more than they could have got in their home market, and the Government saved the profit ordinarily paid regular dealers. Government requirements

in regard to buying horses are very exacting, says this agent, and it was no easy matter for him to get the farmers in line. But he persevered—that's characteristic of county agents—and by proving to them it would be to their advantage to sell to "Uncle Sam" he put through the deal.

BETTER DISPLAY HELPS SALES

County Agent Shows Farmer How to Attract Customers at Market

An assistant county agent in Middlesex County, Mass., noticed that many farmers selling produce at one of the community markets took no pains to make their goods attractive to purchasers. On several occasions the agent was able to help farmers make better displays of products.

An instance occured at Haverhill. One morning the agent asked a farmer how his tomatoes were selling and was told that practically no sales were being made. An examination showed that the box of tomatoes was partly hidden by other products and that the box showed some bruised, some poorly colored, and an occasional specked tomato. The lot as a whole, however, consisted of well-shaped, well-colored tomatoes. With the consent of the farmer the agent picked out six rather unsightly tomatoes and placed them in another box, properly arranged the remainder, and placed the box in a slanting position on the stand.

Before this box was well placed in position a customer inquired the price a pound and bought three pounds. Other customers followed and the box was quickly emptied. The farmer in his spare moments began refilling the box, but before it was filled other customers appeared and bought all his product. The few tomatoes that had hindered sales were sold at a lower figure. This illustrates how a little attention to small details makes advantageous marketing possible.

Alfalfa Seed Brought From West By Farm Bureau in New Jersey

The farm bureau of Burlington County, N. J., was instrumental last year in securing 7,000 pounds of alfalfa seed from growers in South Dakota and Kansas. The seed was purchased through a committee and sold to the farmers at cost.

Alfalfa is becoming an important crop in this county, three to four cuttings being made each year. Many samples of soil from the proposed alfalfa fields have been tested and the results reported to the individuals before the fields were seeded.

Test plots have been located in four sections of the county. From 20 to 30 plots, 1 rod square, have been seeded with different varieties. It has been demonstrated that common alfalfa from seed grown in South Dakota, Idaho, Kansas, Montana, and North Dakota gives the best results in central New Jersey.

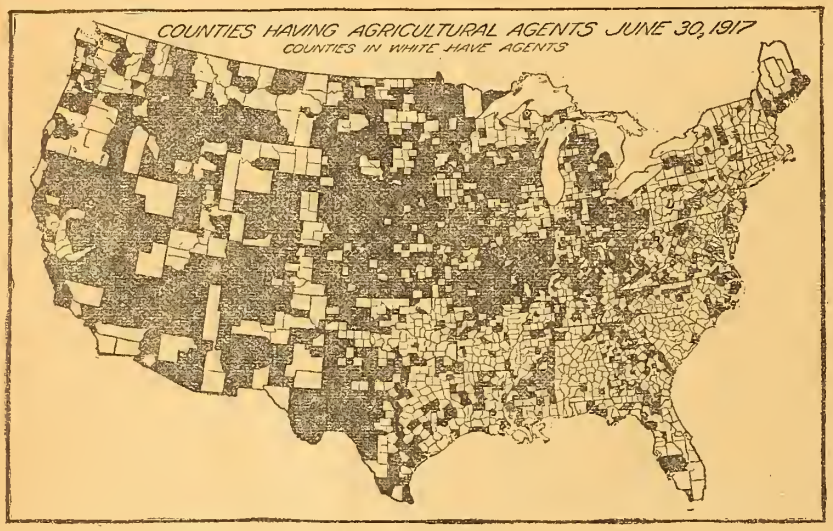
FARM BUREAU IDEA SPREADS

Canada and Australia Ask Information on Plan of Work

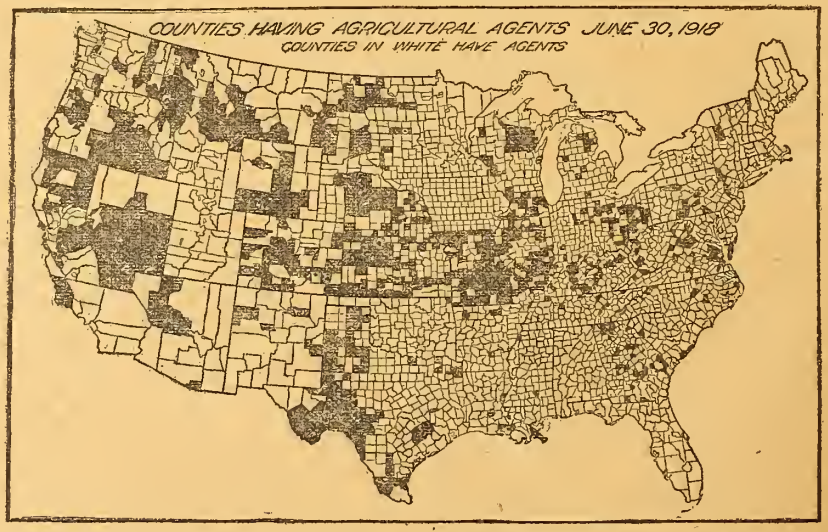
Inquiries have been received by the United States Department of Agriculture from Canada and Australia for full particulars regarding the organization and operation of farm bureaus in the United States, indicating that interest in the plan of work is no longer confined to our own country, but that other countries are eager to adopt a similar type of organization.

The farm bureau is not only an organization to aid the work of the county agent, but is becoming the official agency, or institution, educational in character, for cooperating with the State and Nation in meeting agricultural needs, and in planning, administering, and directing all phases of extension work in agriculture and home economics in the county.

A "THOUSAND AND ONE" MORE COUNTY AGENTS——



GO TO WORK FOR BETTER FARMING—1917, 1,434; 1918, 2,435



COUNTY AGENTS PLAN IRRIGATION.

County agents in some of the Western States where irrigation is necessary for successful crop production helped materially in adding to the food supply of the Nation by planning 225 irrigation systems,

involving the irrigation of 162,475 acres of land. In other sections where drainage was necessary the county agents planned for 1,188 drainage systems, involving the drainage of more than a third of a million acres. In many instances the principal work of the agents has been to arrange for the laying out of drainage districts and to show farmers how to estimate the total cost and the returns which might be expected.

County Agents in Texas Working for Enough Cane for Home Sirup

County agents in Texas are conducting a campaign to interest local growers in raising cane. Already they have taken orders for nearly 1,000 tons of cane for planting. They are recommending that sufficient plantings be made on every farm in eastern and central Texas to produce at least the maximum requirements of sirup to supply the family's needs. As both sorghum and ribbon cane produce a large amount of sirup, it is a very profitable crop, and in sections possessing community standardizing plants, which the extension service of the United States Department of Agriculture and the Texas State Agricultural College are establishing, the acreage is expected to be materially increased above the needs of the local community.

Sirup production from ribbon cane in Texas has decreased considerably during the past year on account of the heavy freezes of the winter of 1917–18, which killed many of the small plantings in the eastern part of the State. In order to increase the production for 1919, the Federal and State extension workers are assisting farmers in purchasing a large amount of seed-cane stocks from the large plantations in the Brazos and Colorado bottoms owned by the State of Texas. In localities too far north for the production of ribbon cane, selected varieties of sweet sorghum will be planted for the purpose of producing sirup.

During the past year the extension department of the Texas Agricultural College has been working on a plan to standardize the sugar-cane sirup and sorghum-cane sirup in central and eastern Texas. Plans have been worked out whereby each of the different grades of sirup will be labeled and sold under its true name. It is also planned to centralize this product in communities, so that all of the sirup produced in one community will be standardized under one label.

ON SOLID FOUNDATION.

At the end of its third year the Cape Cod (Mass.) Farm Bureau finds itself in better shape for carrying on organized work throughout the county than at the close of either of the previous years. Its membership has increased 32 per cent, and renewals from old members have come in satisfactorily. Projects of the bureau have been carried through much more easily than heretofore. The people of the county responded nobly in war work and food production activities, and the bureau has been recognized as the agency through which all extension work is carried on.

LOUISIANA GETS GOOD LIVE STOCK.

The farm bureau and the county agent of Washington County, Wis., assisted Louisiana farmers to secure $8,945 worth of stock, including 68 grade Holstein cows, two pure-bred Holstein bulls, 12 pure-bred heifers, one Guernsey cow, and three carloads of Poland-China pigs. The agent also assisted another party of farmers to secure five pure-bred Holstein cows and a carload of pure-bred Holsteins at the Fond du Lac sale. This pure-bred stock will be shipped to Louisiana as a foundation for dairy herds.

HOW FARM DEMONSTRATIONS INCREASED PROFITS.

Last year the county agents in the 33 Northern and Western States arranged for and supervised 34,613 demonstrations, either to show methods or results, involving 2,084,589 acres of crops and 149,820 head of live stock. In connection with these demonstrations 13,047 meetings were held to acquaint farmers with results of demonstrations, attended by more than 400,000 persons. On 16,370 demonstrations which it was possible to follow up closely to determine results based on definite records the agents report more than $4,500,000 profit to farmers, due to increased production or saving resulting from following methods recommended. A great many demonstrations have also been conducted for which no definite money value could be assigned. Others are continued more than one year, and many are never brought to final conclusion on account of drought, frost, and other conditions preventing their completion.

FARM BUREAUS AID EXTENSION WORK.

Farm bureaus were originally organized by the county agents in the 33 Northern and Western States to aid them in their demonstration work, but now they have come to be recognized generally as the county extension organization. During the fiscal year ending June 30, 1918, the number of farm bureaus increased from 278 to 775, with a total membership of 300,000. Through these bureaus the county agents developed the agricultural and home-economics programs.

Sorghum Production Increased to Meet Demand for Sirups

Because of the unusual demand for sirups, the Douglas County (Nebr.) Farm Bureau made sorghum sirup production one of its emergency projects for 1918. The county agent began his work on this project in the early spring by locating available supplies of seed.

The acreage in sorghum was increased 400 per cent over that of 1917. Five sirup mills were in operation. The agent assisted in the purchase of larger machinery for one plant and the installation of a new plant which was operated cooperatively by several farmers. Although the season was rather unfavorable for sorghum production, the returns were quite satisfactory and the sirup sold readily at $1.25 to $1.50 a gallon. One farmer raised 40 bushels of seed and made 40 gallons of sirup from one acre. Another farmer made 500 gallons of sirup and thrashed 300 bushels of seed from 12 acres.

In 1917 one sorghum maker sold from 18 acres 2,500 gallons of sirup at $1 a gallon. He also thrashed 18 bushels of seed an acre and sold it for $3.50 a bushel the following spring, making the total return from each acre $201. In this case the pulp was run into a silo and made into silage. Feeding tests show that sweet sorghum silage is nearly equal to corn silage for milk production. A three-year test has also shown that corn, kafir, and sweet sorghum silage are almost equal as a maintenance ration for calves.

The farmers of Douglas County have been awakened to the possibilities of sorghum sirup production and prospects are good for 1919.

Farm Bureaus in Ohio Increase Membership Beyond 30,000 Mark

In an intensive campaign for membership, conducted during Thanksgiving week by the farm bureaus of Ohio, a grand total of 30,246 was reached, according to incomplete reports. Some of the large county enrollments, considering the agricultural population, are Marion County, with 1,516 members; Clermont, 700; Hamilton, 769; Licking, 956; and Shelby, 650. In addition to rallying to the support of the farm bureaus the farm-

ers committed themselves to county food production programs for the coming year. These varied in accordance with the types of agriculture in different sections.

One of the interesting features of the week's work was the precampaign meetings held in a number of the counties. The meeting, for instance, in Licking County, at Newark, was attended by 108 persons and was an occasion of spirited enthusiasm.

How New Hampshire Farmers Look Ahead to Better Farms

Farmers in Grafton County, N. H., are cooperating in a business-like way to promote better farming in their community. Through the Grafton County farm bureau local farm problems are discussed and plans for the best agricultural interests of the county are prepared.

At a recent meeting of the bureau a resolution was passed instructing the officers and agents of the association to continue the farm projects now under way. They are organization, soils and fertilizers, dairy and live-stock improvement, cooperative buying, farm crops, farm accounts, boys' and girls' club work, and Federal farm loan bank. The resolution states these lines of work are necessary to the best agricultural interests of the county. The bureau also urges its officers and agents to take up any emergency work they deem best for the good of the county.

The members, through the resolution, pledged the support of the bureau to the United States Department of Agriculture in carrying out any program necessary to the best interests of agriculture.

HANDICAPS OVERCOME BY AGENTS IN WAR CAMPAIGN FOR MORE FOOD

How county agents in the northern and western States and the local organizations through which they work overcame practically every difficulty that stood in the way of carrying to a successful close the increased food-production campaign last year is recited in the annual report of the States Relations Service, United States Department of Agriculture.

Among the principal handicaps met by the farmers in their efforts to increase crop and live-stock production was the difficulty of securing sufficient farm help and the necessary and desirable fertilizers, seed grain, and seed potatoes. The county agents in the 33 northern and western States assisted 132,205 farmers in securing or locating 2,615,497 bushels of seed grain, beans, and seed potatoes, including more than half a million bushels of seed corn for the 1918 crop. As a direct result of this campaign 3,478,982 additional acres are reported to have been planted with those crops for which the Government has felt the greatest need for meeting the threatening food shortage, both of this country and the Allies. The increased production brought about primarily through the efforts of farm-bureau committeemen and the county agents is reported to have been 32,767,756 bushels of crops and 272,746 tons of forage.

The farm-bureau offices or county agents in the northern and western States received 65,095 applications for farm help and assisted in securing or placing 66,036 laborers, including more than 3,000 women and girls, used principally in harvesting fruit. In order to meet the labor difficulties on farms the agents arranged to assist in locating and placing farm laborers by keeping lists in their offices of those wanting farm help and those desiring work. In many instances the agents have cooperated with State labor agents in having a farmer in each community serve as committeeman on labor supply. These committeemen reported to the county agents help needed and available in their communities in excess of local needs and supply, and the county agent, in turn, reported to the State leader the number of laborers needed in the county which could not be supplied locally.

BACK UP YOUR FARM BUREAU.

Your farm bureau is an organization for the development of a rational program of work in agriculture and home economics, and for cooperating with State and national organizations to further public projects. It was organized to further the farmers' interests, and every farmer should back it up.

HOW ONE COMMUNITY THRASHED ITS WAR-TIME CROPS OF SMALL GRAINS

When the Food Administration called, during the fall and winter of 1917, for more small grains in behalf of Europe, farmers of the town of Columbia in Tolland County, Conn., responded with increased acreages amounting to 200 per cent of wheat, 133 per cent of barley, 30 per cent of oats, and 28 per cent of buckwheat. It was a splendid patriotic demonstration, but it caused a lot of worry later when the harvest season was approaching and no thrashing machine was available in the neighborhood.

The farm bureau had taken a census of grain binders and thrashers in the county, but there wasn't a thrasher in Columbia that could be guaranteed to run. A meeting of the farmers was called, and as a result one young farmer agreed to buy a thrasher if a minimum of 100 acres of grain could be assured at rates that would enable him to come out on the right side of the ledger. A committee was appointed and the grain was assured, at a thrashing cost of 7 cents a bushel, power to be paid for as an extra, and a minimum charge of $5 for a set-up. So the thrasher outfit was purchased.

So systematically was the work of the committee accomplished that the thrasher went from farm to farm with a minimum of delay and expense. All of the grain in the community was taken care of, and the owner of the machine paid for his investment in its first year. He now has the promise of enough grain next season to keep the machine busy and the farmers are not nervous about their increased acreages. Thrashing in other parts of the county cost from 12 to 25 cents per bushel. The farmers of Columbia are satisfied and the owner was paid for his investment.

NEW RYE TRIED IN MISSOURI.

Finding that the native strain of rye in Scott County, Mo., was a low producing crop, the county agent induced eleven farmers to buy Rosen rye seed from Michigan, and 60 bushels were purchased through the farm bureau. The price was $3 a bushel f. o. b., sacks and express extra. This new strain of rye has a great producing record in Michigan, having yielded as high as 45 bushels an acre, and often doubling the yield of common rye on the same soil.

FOOD AND MONEY SAVED.

The county agent in Hampshire County, Mass., found some of the creameries were turning all their skimmed milk, or all but a small part which they sold for 2 cents a gallon, into the drain. Arrangements were made for making the skimmed milk into cottage cheese. No additional help was needed to do this and the income of the creameries was increased about $200 a month during the summer.

STANDARDIZED DAIRY MANGER IS DEVELOPED BY DEPARTMENT

Uniform Type Expected to Save Money and Be More Satisfactory

Better Forms, Successfully Used For Years, Are Nearly Alike; Manufacturers and Dairymen Both to Benefit

A standard dairy manger has been developed by the United States Department of Agriculture. The need of such a standard has been apparent for some time. Thirty-five firms which make and sell equipment for dairy barns manufacture mangers of similar design and construction, except for minor modifications. Each manufacturer turns out a design just a little different from those of his competitors. Cement associations and lumber associations have also developed special designs.

At little expense and trouble all these mangers could be standardized and made uniform. After a careful study of the existing mangers, the Division of Rural Engineering of the Department of Agriculture learned that the better forms, which have been successfully used for years, were so nearly alike that there is no valid excuse for not adopting a standard. Popularization and use of such a manger would be equally advantageous to manufacturers and to dairymen.

Successful dairymen agree that in order to get best results cows must be fed separately. This is usually accomplished by using manger divisions, which are made removable or hinged so as to facilitate cleaning the manger. Their use is rapidly increasing and the standardization of mangers will undoubtedly result in a similar standardization and improvement of the divisions.

Better Work at Less Cost.

Some companies furnish manger templets or patterns to their customers in order to avoid mistakes in measurement and to aid in construction. They are prepared to furnish templets for each of their different forms of mangers. The universal use of the proposed manger would avoid mistakes made in sending wrong templets which cause delays and misunderstandings. With one set of templets, the builder is able to make a manger suitable for the requirements of the dairyman and can build the barn for any equipment. As a consequence the contractor can use better forms, do better work, and reduce the cost.

The advantages in the adoption of such a standard by the manufacturers are that it permits the use of one manger templet, decreases the likelihood of mistakes in construction, lessens misunderstandings, and leads to the standardization and perfection of manger divisions and ultimately decreases the cost of production.

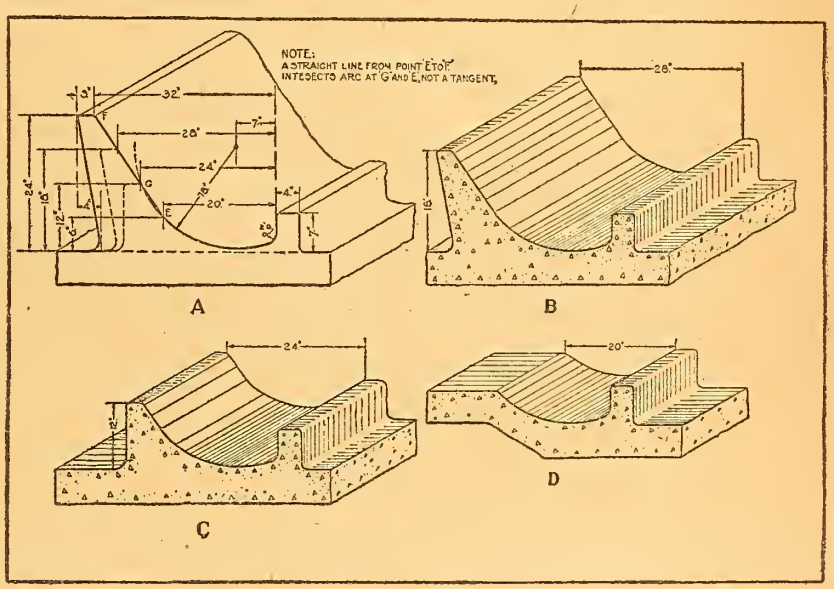
The accompanying illustration shows the construction of the standard manger suggested by the Division of Rural Engineering. The manger under consideration meets all the requirements found in an average dairy barn. It gives definite measurements necessary for construction and eliminates the confusion likely to result from the use of numerous forms, while at the same time it permits sufficient variation to fit the individual needs of any dairyman.

Features of Feed Alley.

The feed alley may be flush with the top of the manger or 24 inches below it. The claim is made that where the floor is flush with the manger it is a simple matter for the attendant to sweep back into the manger all the grain nosed out by the cows. On the other hand, big knees and cases of abortion are attributed to this style of manger, because cows have strained to reach grain on the feeding floor. Furthermore, this style adds to the cost of construction, as it requires extra filling and makes different floor levels in the barn. When a wide manger is used and where the manger wall is 24 inches high there is little liability of any grain being thrown out of the manger or wasted. The front of the proposed standard manger slopes in at the bottom, which results in saving concrete and permits space for passage of feed truck wheels close to the manger.

Drawings B, C, and D show the finished appearance of three of the sizes. A is a combination drawing showing relative shapes and dimensions of the four sizes that are recommended. Mangers made continuous and of the same form as the 24-inch manger shown in A are preferable. Mangers should be free from cracks and crevices, with smooth surface, and have all corners rounded to aid in cleaning. The bottom of the manger should be curved and with sufficient slope—1½ to 2 inches in 100 feet—toward one end to drain well. The curb should never be less than 6 inches higher than the bottom of the manger and 4 inches wide at the top if not over 7 inches high. If a 12-inch built-up curb is used the width across the top should be 5 inches or more. Any column coming within the curb should be surrounded by at least 1 inch of concrete, reinforced so as to prevent cracking at this point.

The present time is favorable for standardizing mangers, as all stocks are low because of the scarcity of steel and other war conditions. Manufacturers are said to favor a standard form. There appears to be no reason why the change should not be made. The universal use of a standard type would benefit dairymen, manufacturers, contractors, and others interested. The American Society of Agricultural Engineers adopted this manger as a standard at their recent convention.



The Standard Manger is a Combination of all the Desirable Qualities of the Many Mangers now on the Market.

Sweet potatoes slowly advanced in production for many years before the war, and in no year did the crop reach 60,000,000 bushels, but in 1915 production jumped to 75,000,000 bushels, and, after a recession in 1916, rose to 84,000,000 bushels in 1917 and 86,000,000 bushels in 1918. This crop has no foreign trade.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions in Anticipation of Problems that Will Claim the Attention of American Farmers During the Next Few Weeks

NORTH AND WEST

The Office of Extension Work North and West offers the following suggestions for the consideration of farmers in the eastern, northern, and western groups of States:

CONCENTRATE ON THE BEST LAND.

The food and feed program for this year is much the same as in 1918. Then it was pointed out that on account of the scarcity and high price of labor, the high prices of everything that went into the making of a crop, and the necessity for a full harvest, the farmer's efforts should be concentrated on his most productive land. That policy brought the biggest returns under war conditions. The same plan should be pursued this year. Prices for everything that go into making the crop are still on a war basis, consequently every acre planted should be put into condition to yield well. It is no time to endeavor to improve the poorest fields. That should be deferred until the prices of labor and fertilizer again become normal. It will then be most practicable if done as a supplement to farming better land. This year every stroke of work should be made to count on the best land of each farm, so that good yields may offset the high expense of putting in the crops this spring.

MAKE SURE OF GOOD FLAXSEED.

Owing to the drought that prevailed in 1918, there is likely to be a shortage of good flaxseed in portions of Montana and North Dakota. As good seed is the foundation of a good crop, farmers having choice seed of pedigreed, wilt-resistant varieties of flax will render real service to their community and to the State if they will promptly clean their supply, reserve the quantity needed for their own use, and make the rest available to others who must purchase.

The Office of Cereal Investigations of the Department of Agriculture, in cooperation with the flax-producing States, is sending specialists to cooperate with the county agents in locating stocks of good seed. Farmers having a surplus should inform county agents of the quantity and kind they have for sale, and those wishing to purchase should make known the quantity they need. It is hoped that the acreage may be increased in 1919 and that a larger part of it than usual may be sown with choice seed. All farmers helping to make this possible will be benefiting both themselves and their country.

BUY NURSERY FRUIT TREES OR PLANTS.

If fruit trees or small fruits are to be set this spring they should be ordered at the earliest possible moment, because the stocks of many nurserymen are running low and already some lines of stock are practically exhausted. Make out a list of the varieties wanted and write to several nurserymen for prices. Deal with the nearest nurseryman who can supply your needs, so the stock will not be long on the road. In the cold sections of the North do not have shipment made until early spring unless you have a cold pit or cold cellar in which to store the trees, shrubs, and plants. If the trees do not come too early, open the package, stand the trees in a slanting position, and cover the roots and part of the trunks with slightly moistened earth. Work the earth around the roots and do not let it dry out or the roots will be injured. This is called "heeling in." Plants of grapes and bush fruits should also be "heeled in," but strawberries should be set straight up and only the roots covered, as earth or sand spilled in the crowns will render the plants useless if it does not kill them. In the South and the milder winter sections nursery stock may be planted now or be heeled in out of doors. In the latter case dig a small trench to stand the trees in, and slant the tops toward the South. Be sure to keep the roots covered with earth.

DON'T DELAY PRUNING GRAPE VINES.

If the grapevines have not yet been pruned, be sure to do so before the buds start. On mild winter days the cut ends will "bleed" some, but that does not matter. Gather up and burn the trimmings, so as to destroy any insects and disease germs infesting them. Tie the pruned arms to the wire supports, and then this job will be out of the way before the spring rush.

SPRAY DORMANT TREES FOR INSECTS.

Orchardists who have the San José and other scale insects to contend with should arrange to spray their trees with proper insecticides before the foliage puts

(*Continued on page 18.*)

IN THE SOUTH

The following suggestions are from the Office of Extension Work South:

PRUNING AND SPRAYING ORCHARDS.

February is an important month for orchards. Trees and small fruits should be pruned and the work of spraying begun. No better investment in time and effort can be made on a farm than that devoted to orchard work in the late winter and early spring months. When the farmer is in doubt as to the proper procedure in the matter of pruning and spraying he should call upon the county agent.

TESTING SEED CORN.

Farmers should not lose the lesson of last spring with reference to the importance of testing seed corn. Corn that to all outward appearances was sound proved to be worthless for seed. The farmer should never take a chance with seed corn, but should thoroughly test every ear intended for seed. The sand and sawdust tray and the rag-doll testers give good results.

PLAN SILAGE CROPS NOW.

It is important at this time that consideration be given to the kind of feed crops that should be grown for the family cow as well as for the dairy herd. In order to maintain the milk production, crops must be planned to meet the requirements of the herd. Since some succulent feed is essential for economical milk production in winter, a silage crop is desirable. For small herds ranging from two to six cows, succulence may be provided in the form of roots; in larger herds it may be supplied by silage.

Dairy farmers in the South must realize by experience gained during the past two winters that a silo filled with silage is a necessity. Some dairy herds have been dispersed during this period, and in most cases this can be traced to the cost of purchased feeds. A silo would have saved them. Many silos have not been filled, and still others have not been built because the farmers failed to plant the necessary crops.

GOOD SORGHUM SEED WORTH WHILE.

Corn growers, or at least a fair percentage of them, select their own seed

and in many cases preserve it through the winter in the ear. Unfortunately the practice of selecting heads of sorghum for planting the next year's crop is not nearly so general as it should be among sorghum growers. The benefits to be derived from seed selection and the proper curing of the seed by hanging the selected heads up on wires in the barn loft or seed house, where they will be protected from the weather and can dry out thoroughly, are not appreciated.

If selected seed heads have been preserved in this way now is the time to thrash these heads, sack the seed, and label it carefully, so that it will be ready for planting in May. Seed kept in this way will give a more even stand and the farmer will have a personal knowledge of its purity and adaptability to his conditions. Germination tests should be procured in every case to assure the farmer as to the amount of seed he must use to obtain the desired stand.

SOY BEAN SEED AND VARIETIES.

As the supply of the 1918 crop of soy beans for seed is reported less than the 1917 crop, it is advisable at this time to look forward to supplies of seed of desirable varieties and prices. It is not likely that the prices will be much lower than at the present time. Undoubtedly much of the 1917 crop of seed will be sold this season. It is well for the buyer as well as the grower who has his own supply of seed to make germination tests. Soy bean seed loses its viability quite readily, and unless the seed is of the 1918 crop or has been properly cured and stored tests should be made to learn if the seed is of high germination.

The variety to be grown is of prime importance, and the grower should select one suited to his locality. The late varieties for forage or seed are best suited to Southern conditions, although the Virginia and Haberlandt, both medium late varieties, have given most excellent results under Southern conditions for seed, forage, and pasture. The best late varieties are Biloxi, Mammoth Yellow, and Tokio.

COWPEA SEED AND VARIETIES.

It is well at this time to take stock of the seed and varieties of cowpeas desired and to obtain quotations and samples. The quantity of the 1918 crop of cowpeas harvested for seed is reported much less than normal. It is hardly possible that prices will be much lower than those prevailing now.

The variety to be selected is of much importance, depending not only on locality, but on the use to be made of the crop. Where the crop is desired for forage or turning under for green manure, mixed cowpeas answer the purpose and are to be had at a less cost than single varieties. The Whippoorwill is a good general purpose pea and perhaps is more generally grown than any other sort. The Groit is one of the highest yielders, both for forage and for seed, and is adapted to a wide range of conditions. For early varieties, the Early Buff, New Era, Whippoorwill, and Early Blackeye sorts and Groit are most suitable. The later varieties are better adapted for forage and better suited to Southern conditions. The best late and medium late varieties include Clay, Unknown, or Wonderful, Red Ripper, and Black.

Among the sorts most suitable for food are the varieties of Blackeye, Cream, Gallivant, Conch, and some of the Crowder varieties.

Get Root-knot Resistant Cowpeas.

Ordinary varieties of cowpeas are severely attacked by eelworms or nematodes, which infest most of the lighter soils in the South and cause root knot of many crop plants and weeds. To plant such varieties on land infested with the nematode is a dangerous practice, since they will either die prematurely or produce poor yields, and will permit the nematodes to reproduce to such an extent that the next crop may be more severely damaged than the first. Certain varieties, however, the Iron, Brabham, and Monetta—are highly resistant to root knot. Therefore, whenever the planting of cowpeas on fields that are or may be infested by the cause of root knot is contemplated, special care should be taken to plant only the Iron, Brabham, or Monetta varieties.

To be certain of having seed of these, the supply of which is limited, farmers should take steps to procure them at once. It is of paramount importance that unmixed seed of these varieties be secured. If Iron, Brabham, or Monetta seed mixed with those of susceptible varieties, such as Taylor, Whippoorwill, or Early Buff, are planted on infested land which contains the eelworms, considerable losses may follow. In addition, the nematodes will be largely increased by having favorable cowpea plants on which to live, and, consequently, subsequent crops planted on the same land are more subject to injury. Many so-called failures of the resistant varieties to withstand root knot are due to planting mixed seed.

As far as practicable, obtain seed from local sources. Such seed seem to be as well if not better adapted than those brought in from other regions. If difficulty is encountered in carrying out the above suggestions, consult the county agent, write to the State agricultural experiment station, or communicate with the Bureau of Plant Industry, United States Department of Agriculture.

PLANT EARLY POTATOES.

With the near approach of the planting season farmers should give immediate attention to the home garden. Among the substantial vegetables which should be grown on each farm in the South none are more important than the Irish potato and sweet potato. A small area of early Irish potatoes should be grown in each garden, but the main crop, of course, should be grown in a larger area, on good soil, well fertilized and well prepared. The early crop of potatoes should be planted as soon as the ground can be prepared. In the extreme southern areas Irish potatoes are usually planted in January, in the middle section of the South in February, and in the section of the latitude of Oklahoma and Kentucky in March. The Irish Cobbler, the White Triumph, and Red Triumph are good early potatoes, but where only one variety is to be grown the Irish Cobbler is recommended.

To safeguard the potato crop against scab it is advisable to treat the tubers by putting one-half pint of formaldehyde in 15 gallons of water and soaking the potatoes in this solution about 2 hours.

The culture of potatoes and other crops is fully treated in Farmers' Bulletin 934 on gardening in the South. This bulletin will be sent free on application to the United States Department of Agriculture, Washington, D. C., or may be secured through the local county agent.

DESTRUCTIVE SWEET POTATO DISEASES.

Ten million to fifteen million bushels of sweet potatoes are lost every year through disease. Much of this loss can be prevented by proper selection of seed and treatment of seed beds. Black rot, foot rot, surface rot, and scurf or soil stain are the principal diseases causing loss. Much of this loss can be prevented by practicing the following suggestions:

Select seed free from spots or rots of any kind.

Treat seed with a solution of bichloride of mercury (1 ounce in 8 gallons of water) for 10 minutes.

Replace old soil in seed bed with new soil, or preferably sand, from a high place in the woods or from where potatoes have not been grown.

Disinfect (after old soil is removed) bed and surrounding area with a solution

of formaldehyde (1 pint formalin to 30 gallons of water).

If bed is temporary, move it each year to where sweet potatoes have not been grown on at least for 8 or 10 years.

Do not use manure in beds or fields from stock to which sweet potatoes have been fed unless the potatoes were previously cooked.

Rogue out and destroy by burning diseased plants in seed plats and fields.

Use a three or four year rotation.

Ask your county agent for advice, or write to the United States Department of Agriculture, Bureau of Plant Industry, Washington, D. C.

CARE OF BREEDING CATTLE.

If it is desired to have calves dropped in the fall or early winter months—November and December—the cows should be bred in February and March. One way to insure a uniform calf crop is to have both the breeding cows and herd bull in good physical condition at this time. A herd bull that has been left with the wintering herd to shift for himself is, as a rule, in poor condition when the breeding season arrives, and the chances are that he will not be a sure, vigorous sire.

The ration for the herd bull should consist of a liberal amount of roughages, such as corn silage, legume hay, stover, or straw, and in most instances, unless in good condition, a small allowance of grain. The breeding cows should be healthy and vigorous at time of calving, otherwise they should receive in addition to a liberal supply of silage, legume hay or other roughages and a small amount of grain, in order that they may give sufficient milk to nourish the calves properly and at the same time maintain their own condition.

USE BEDDING SPARINGLY.

The use of at least a limited amount of bedding for beef cattle is advisable, but the extravagant use of straw, coarse hays, etc., for this purpose should be discouraged. All such roughages that are to be used for bedding, either for fattening or breeding animals should first be offered them in the hay-rack and that which is refused used for bedding. If stover is fed the stalks, while somewhat difficult to handle, make satisfactory bedding material and should be used for this purpose rather than burned or otherwise disposed of.

REPAIR FEED BOXES AND HAY RACKS.

In many instances animals do not get the feed actually intended for them, due to improper and faulty construction of feed boxes and hay racks. Many feed boxes are so shallow and small that much feed is wasted as the animals eat from them. In order to prevent this waste the feed boxes should be repaired. They should be at least 18 inches wide and 24 inches long and 12 to 14 inches deep. It is often advisable to feed the concentrates with silage to prevent waste.

Hay racks should be constructed to prevent animals from tossing or pulling hay under their feet. All hay racks should have a tight bottom to prevent the loss of leaves and finer particles of hay. The leaves of hay, especially of the legumes, contain most of the protein and are, therefore, that part of the roughage which the animals need. A few hours' work in repairing boxes and hay racks, and at a very small cost, will result in saving sufficient feed to maintain the animals in a satisfactory condition.

EARLY-HATCHED CHICKENS.

Poultry raisers place great dependence upon the early hatched chicken on account of its greater vitality, making a more vigorous growth, escaping the ravages of disease and insects, developing into early maturity, and the pullets from this hatch becoming profitable layers in the early winter season following. As a rule it is also true that eggs produced in the early part of the season will show a higher percentage of fertility than those produced later in the season. Care should be taken now to begin saving eggs for the first setting in the incubator. Select even-shaped medium-sized eggs, and keep them in a cool place. Better results will be secured if these eggs are turned carefully every day. Do not keep them over 10 days or 2 weeks before putting them in the incubator.

Before setting up the incubator give it a thorough cleaning inside and out. Remove all the trays and scrub them with hot soapsuds. After they have dried brush the entire inside of the incubator and all the trays with wood alcohol. Clean out all the lamp flues to see that there are no cobwebs or carbon deposit; also, that these spaces have not been used for mice nests in the wintertime. Clean the oil chamber of the lamp with hot soapsuds and remove the old wick from the burner and boil the burner in a soda solution for 15 or 20 minutes. Run the incubator for 48 hours to get the thermostat properly adjusted. After running the incubator five days, test the eggs and remove those that are infertile. Now is a good time also to clean the brooder. Give it a thorough coating with some good disinfectant, fix a clean, dry place for the young chicks when they are hatched, and, if possible, keep them removed from the main flock until they are half grown.

HOME MIXING OF FERTILIZER.

A very important saving in the fertilizer bill can be made by buying the ingredients and mixing at home. February is usually the time of slack work on farms in the South, and this will be an excellent time for farmers to lay in their supply of fertilizing materials and do their home mixing, so that this work will be out of the way at the time of planting.

TIME TO SEED CLOVER.

The time for seeding clover is now at hand or rapidly approaching. During the past year, due perhaps in part to the desire to produce larger quantities of grain and in part to the increased price of seed, a smaller acreage than usual was seeded down to grass. Clover seed is higher in price now than it was last year, and there is no reason to expect a reduction this season. Necessary quantities should therefore be purchased at once if they have not already been secured. In buying, special attention should be paid to quality. A high-priced lot may be cheaper than a low-priced one. For example, if one lot costs $45 a hundred pounds and contains 99 per cent of pure seed, of which 95 per cent will grow, there will be 94 pounds of pure viable seed in every hundred. This 94 pounds will therefore cost 47.8 cents a pound. Another lot selling for $35 a hundred may contain 90 per cent of pure seed, of which 80 per cent will grow. This lot then has 72 pounds of pure, viable seed in a hundred pounds, and this 72 pounds will cost the buyer 48.6 cents a pound. On the other hand, a lot costing $40 and containing 95 per cent of pure seed, of which 90 per cent will grow, will contain 85.5 pounds of good seed to the hundred, and will cost the consumer 46.7 cents for every pound of good seed. Have the seed tested and be ready to act early and intelligently.

In general, it is well to sow alsike clover mixed with the red clover, a practice which has become very common in recent years. It is much easier to secure a stand of alsike than of red clover, so the admixture of alsike usually insures a partial stand at least. Alsike will make a growth on poor soils where red clover will fail, but it nevertheless appreciates lime and good soil.

On account of the high price of seed it is desirable to economize as far as prac-

tlcable in the rate of seeding. One pound of red clover contains 250,000 seeds, enough to place 6 seeds on each square foot of an acre; while alsike contains about 700,000 seeds to the pound. Nevertheless, the ordinary rate of seeding for red clover is 8 to 10 pounds an acre and for alsike about 6 pounds. It is evident that the amount of seed necessary to get a stand can be greatly reduced if methods can be used that will insure the survival of a larger percentage of the seedlings. Several methods assist materially in obtaining a stand, particularly in wheat, and the following are recommended:

Sow at the most favorable time as regards soil condition and cover the seed by sowing and then harrowing or by harrowing both before and after sowing, or the clover may be sown with a disk drill. By any one of the methods any injury to the wheat or timothy sown in the wheat is negligible.

If barnyard manure is available it will greatly assist in securing a stand, even when the clover seed has been sown on the snow covering or on the wheat without harrowing. Straw is likewise very useful, but less efficient than manure. Either the manure or the straw assists largely by reducing the alternate puddling and baking of the soil surface and thus protecting the seedlings from destruction.

FERTILIZER SUPPLY IS ADEQUATE FOR SPRING USE; MAY LACK POTASH

For the first time in several years, American farmers will probably be able to secure adequate supplies of fertilizers for use this spring. The supply of nitrogenous materials is regarded as ample because large stocks of nitrate of soda which were brought into the country for munition purposes are now available for agriculture and, in addition, the producing capacity of ammonium sulphate plants has been increased since 1913 from about 200,000 tons to approximately 400,000 tons.

The Department of Agriculture also has purchased out of a $10,000,000 revolving fund a supply of nitrate of soda which will be distributed to farmers at cost for cash, the price being $81 a ton, plus freight.

There is in the country a large surplus of sulphuric acid producing capacity, and native supplies of phosphate rock are available practically to any extent demanded. Some shortage of potash may continue, as it is not thought that supplies can be obtained in time for use this spring either from Alsace or from Germany.

This information is furnished by the United States Department of Agriculture in a circular, "Crops and Live-Stock Production in 1919," recently issued from the Office of the Secretary. The department suggests, since the best results are obtained from fertilizers when used with a full knowledge of available plant food content and particular soil and crop requirements, that farmers look to their State experiment stations for information as to their particular needs.

War Retards Veterinary Training; Live-Stock Men Should Use Care

Attendance diminished materially last year in the 21 veterinary colleges in the United States which are accredited by the Bureau of Animal Industry of the United States Department of Agriculture. The dean of one college reports that owing to war enlistments he lost 50 per cent of his faculty and 66 per cent of his students. The number of freshmen enrolled in all veterinary colleges of the country for the 1917–18 session was 338 against 637 for the preceding year, a decline of about one-half. The total attendance at all veterinary colleges showed a falling off of more than 800 students. A further reduction is indicated for the session of 1918–19.

As interpreted by the Bureau of Animal Industry the effects of the reduced attendance in veterinary institutions will be felt more in the future than now, for the coming graduating classes will be unusually small.

Until veterinary education and the profession generally can be restored to at least its prewar development live-stock raisers are urged to use extreme care in safeguarding the health of their animals. All suspected cases of contagious diseases should be reported promptly to State and Federal live-stock authorities. Sanitation and other preventive measures will help greatly in reducing animal ailments. In addition there is need to encourage persons of proper fitness to engage in veterinary studies so there may be an adequate number of trained men to respond to emergency calls and for prompt control of live-stock epidemics.

BARLEY CROP GREATER.

Not until 1899, as far as is known, had barley become a crop of more than 100,000,000 bushels in this country. The production was then 120,000,000 bushels. This quantity was permanently exceeded in 1902 and thereafter, and by 1914 the crop reached 195,000,000 bushels. The pressure for food and feed raised the production to 229,000,000 bushels in 1915, but an unfavorable season forced it down to 182,000,000 bushels in 1916. Marked gains followed to 212,000,000 bushels in 1917 and 256,000,000 bushels in 1918. For fermented and distilled liquors 34,000,000 bushels of barley were used in the fiscal year 1918.

Exports of oats from the United States were usually only a very few million bushels yearly before the war, but in the fiscal years beginning in 1914 they have averaged about 100,000,000 bushels.

Gives Essentials for Profitable Sugar-Beet Growing in Montana

Investigations by the United States Department of Agriculture have indicated that the growing of sugar beets can not be profitable in the Billings region of Montana unless a yield of more than 8 tons of beets an acre is produced. This is stated in a report of the investigations just published by the Department of Agriculture as Bulletin 735, "Labor Requirements and Cost of Growing Sugar Beets in the Billings Region of Montana in 1915."

It is also shown that each farmer should grow at least 20 acres for most economical production.

The average acre of the region devoted to sugar beets returned in the period investigated a profit of $11.70 after paying the cost of production.

The spraying of trees during winter and spring, or when they are in a dormant condition, is directed largely against scale insects, especially the San Jose scale. There are two principal advantages of spraying at this time: The absence of foliage permits more thorough applications, and the sprays may be used much stronger than during the growing season. Contact sprays, such as lime-sulphur solution, fish-oil, and other soap washes, kerosene and crude-petroleum emulsions, are employed. The prime essential is thoroughness in making applications, so as to cover every part of the tree, because in general only those insects actually hit with the spray are killed.

"17-Year Locust" Broods Due This Year; No Cause for Alarm from Cicada Pest

The most interesting insect in the world, the periodical cicada, is going to be seen, perhaps in very large numbers, during the coming spring and early summer over large regions of the United States where this brood has not appeared before for 17 years, and over other regions where another brood appeared 13 years ago. This is the insect commonly referred to as the "17-year locust," a name that is incorrect in at least two particulars. It is not a locust at all, that name being properly applied only to members of the grasshopper family, and while it has a 17-year period, it also has a 13-year period. It has been so long miscalled by the name of locust, however, that there is no hope of divesting it of that incorrect appellation, and in the regions where there is the longer period of recurrence it will continue to be known as the "17-year locust," and in the areas of the shorter recurrence period as the "13-year locust." The scientifically accepted name of periodical cicada, therefore, is the only one that exactly fits.

The statement that this is the most interesting insect in the world will hardly be questioned anywhere, and it is the most interesting because it is the most anomalous, or, possibly, because it has always appeared to be so mysterious. The fact that it appears in countless numbers one year, then is not seen again for half the average lifetime of human beings, and then suddenly appears again in countless numbers, has kept the popular mind mystified and has woven many superstitions about the cicada. When it is known that the insect spends the 13 or 17 years in slow development beneath the ground and emerges at almost exactly the same spot where it entered the ground 13 or 17 years before, then the mystery disappears, but the interest, if anything, is intensified. One of the queerest things in nature is that in spite of such extremely slow growth in their subterranean habitat, all the millions of individuals attain maturity and burst from the ground at almost the same moment.

Cicadas' Appearance Foretold Accurately.

Every "locust year" is, in some sort, a year of fear and dread. It appears to have been so with the savages and has remained so with their civilized successors, notwithstanding the fact that the cicada has been under investigation for well over 200 years, and the appearance of the swarms are foretold by entomologists as accurately as eclipses of the moon are foretold by astronomers. People have fancied that they could detect in the cry of the cicada a resemblance to the name of the monarch, Pharaoh, that persecuted the Israelites, and that occult belief or fear added to the somewhat dolorous sound has served to make the cry of the cicada generally an unwelcome one. Very long ago some superstition attached to the dark bars of the filmy wings. These bars are always in the shape of the letter W, but few people remember that through a period of 13 or 17 years, and great significance is attached to it at each recurrence. Some prophet has arisen always to announce that the W on the locust's wings means "war." Since this outbreak will come just at the conclusion of the greatest war, and when even the imagination of the rural prophet could hardly conjure up the likelihood of another one, some new explanation will apparently have to be found this time. But no doubt the cicada will, as usual, be greeted as a harbinger of disaster, and, as usual, there will be reports of deaths caused by stings of the cicada, a belief that has persisted in spite of positive proof that the cicada has no sting; that only by the extremest accident could it inflict a wound either with bill or ovipositor, and that it could not, in any case, inject a poison.

Any attempt to dispel the myths that recur as faithfully as the cicada is likely to be unavailing since those who still believe in them probably will continue to do so regardless of anything that may be said. There is, however, another erroneous belief that may be somewhat shattered by a statement of the facts and that constitutes the main reason for press agenting the cicada in advance of its arrival.

Injury Is Usually Overestimated.

Upon every appearance of large broods of the cicada fear is aroused that trees will be destroyed, particularly young trees of the fruiting and ornamental species. There would seem to be some ground for such a fear. The number of the insects is so tremendous that one can hardly understand how they can deposit their eggs in the young and tender branches of the trees without killing them. Yet the fact remains that there have been outbreaks of cicadas in some sections of the United States in most of the years since this country was discovered and that no very grave damage ever yet has been done. Very young fruit trees sometimes are killed or seriously injured, but little or no permanent injury is done to forest trees or mature trees of any kind, and measures of protection can be employed that will save the young and tender stock from serious injury.

Inasmuch as the coming 1919 brood of locusts may be one of the largest on record, it is particularly important to allay excessive fear of destruction to timber as well as to have people on guard, so that the few preventive measures possible may be applied. The belief that the 1919 brood will be exceptionally large is based on the fact that the 17-year brood coming out this year is brood 10, perhaps the largest of the 17-year broods, and that brood 18 of the 13-year family comes out at the same time. The year 1868 was the greatest locust year in history. In that year brood 19, the largest of the 13-year broods, appeared in conjunction with brood 10, the two combining to make an unprecedented infestation. The coincidence of the largest 17-year brood with a smaller 13-year brood this year will not bring about conditions approaching those of 1868.

WHEN THE "17-YEAR LOCUSTS" COME.

The year 1919 is likely to be one of the worst "locust years" on record. But entomologists of the United States Department of Agriculture see nothing alarming in the prospect.

The periodical cicada, the real name of the insect commonly called "locust," will appear this year in the following States: Alabama, District of Columbia, Delaware, Georgia, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin.

The injury done by the periodical cicada consists almost wholly in chiseling grooves in the branches of trees for depositing eggs. This injury always appears to be greater than it actually is. Popular alarm is usually out of proportion to general damage.

Young fruit trees are sometimes killed by the cicada. The precautionary measures are: Defer putting out young fruit trees till next year; postpone budding operations; do no pruning this winter or spring.

When the insects begin coming out hand pick them from young fruit trees or spray them with pyrethrum powder, kerosene emulsions, or a solution of carbolic acid or acetic acid.

Later, when the insects are ready to begin laying, spray young fruit trees with whitewash.

The United States Department of Agriculture has long kept close check on all of the broods of both families, and is able to say with almost complete accuracy just when and over what territory any brood will appear. The work of classifying and locating the various broods with their periods of recurrence began a long while ago and was attended for some time with considerable confusion. It was generally believed that the period of recurrence was 17 years, but every once in a while there would be an outbreak that failed to coincide with any possible 17-year period and investigators were getting different results, with periods apparently ranging all the way from 10 years to 17 years. All this work was done on the assumption that all periodical cicadas were alike, and the records were getting decidedly snarled before the discovery that the 13-year family is separate and distinct from the 17-year family.

Early Investigators Discovered 13-Year Race.

The honor of this discovery belongs perhaps to Dr. D. L. Phares, an independent investigator of Woodville, Miss., who on May 17, 1845, published in the Woodville Republican an article in which he asserted the existence of a 13-year family, and elaborated the belief that most of the locusts in the southern territory were of that family. However, the paper in which he published his report was of limited and local circulation, and knowledge of the discovery did not gain currency. At about the time Dr. Phares made the investigation that led to the discovery of the 13-year race similar investigations were in progress by Dr. Gideon B. Smith, another independent investigator of Baltimore, Md. Dr. Smith left an extremely valuable manuscript which was never published, in which he stated the same conclusion as did Dr. Phares. There is evidence, however, that Smith had been in correspondence with Phares, and that he at first rejected the evidence of the 13-year family, and accepted it only after several years' additional investigation. The fact was not definitely accepted until 1869, the year following the greatest locust outbreak, when Dr. B. D. Walsh and Prof. C. V. Riley recorded the investigations that became the basis of the accumulated knowledge of the Department of Agriculture.

With the existence of the 13-year family definitely recognized the work of mapping the various broods was greatly simplified, and in no great time was made complete. The perfecting work was done very largely by Mr. C. L. Marlatt, now chairman of the Federal Horticultural Board, and for many years connected with the Bureau of Entomology of the United States Department of Agriculture. Mr. Marlatt renumbered the broods, and mapped the territory in which they occur, and references to them now usually are made in Marlatt nomenclature rather than in the older nomenclature of Walsh, Riley, Smith, and Phares.

The two broods due this year are brood 10, which belongs to the 17-year family, and brood 18, which belongs to the 13-year family. The former will appear mostly in northern territory and the latter in southern territory.

Brood 10 Most Widely Distributed.

Brood 10 has the widest distribution of any brood. Beginning at the eastern extremity of Long Island it sweeps west and south to the Mississippi River at Cairo, Ill., and extends as far north as central Wisconsin, and as far south as middle Georgia, with some isolated colonies as far northeast as upper Vermont, and one as far west as the boundary line between Iowa and Nebraska. The whole or portions of 20 States are included within this range. There are three regions of greater occurrence—one covering New Jersey, Maryland, and eastern Pennsylvania; another covering all of Indiana, the greater part of Ohio, and southern Michigan; and a third covering western North Carolina, eastern Tennessee, and northern Georgia. The records of this brood have been kept from 1715 to 1902, the date of its last appearance. In 1902, for the first time since very careful study of the cicada began, it was not accompanied by a 13-year brood, and its actual range was more nearly determined than before, although the old limits of distribution were pretty generally confirmed. In the regions of greatest occurrence this brood will probably appear in dense swarms here and there, but will not cover the territory uniformly.

Brood 18, the 13-year brood that comes out this year, is comparatively a small brood, and is made up of scattered colonies rather than of the dense and compact swarms that mark the larger broods. Five States are affected by it—Alabama, Georgia, North Carolina, South Carolina, and Tennessee—but it touches only limited areas of these States. In Alabama only two counties are affected, Lowndes and Montgomery. Georgia counties affected are Cherokee, Cobb, Gordon, Oglethorpe, and Screven. North Carolina counties are Anson, Lincoln, and Moore. In South Carolina only one county, Edgefield, is affected. The Tennessee counties touched are Carroll, Dyer, Lauderdale, Lincoln, McNairy, Madison, and Stewart. This brood is an unimportant one, and will probably appear in such scattering numbers as generally to escape observation.

Overlapping of the two 1919 broods will occur only in the States of Tennessee, North Carolina, Georgia, and Alabama. The locust population will not be so dense along the border line between the two races, neither will it be so widespread as in 1868, but it will be, nevertheless, one of the large locust years, unless weather and other conditions should serve to check the outbreak. It sometimes happens that a late spring freeze over varying areas destroys the greater part of the locusts before the time arrives for depositing eggs, and other natural causes frequently tend to diminish the possible devastation.

Cicadas Will Appear in May.

Latitude does not appear to materially affect the time of emergence from the ground, the cicada in the lake States coming out within a week or two of the same time as in the Gulf and South Atlantic States. This date ranges from the last week in May to the first in June, and the shrieking hosts may be looked for throughout the whole territory indicated at about that time. Late in May or early in June the under sides of leaves on practically all trees in dense brood areas will be studded with the cast skins, and every wooded place will be resounding with the shrill drums.

A month later the deposition of eggs in branches will have become general. Of forest trees, the oak and hickory appear to be preferred, though the cicada deposits eggs in all kinds of trees, with apparent tendency, however, to avoid pines and cedars and such other species as exude gummy substances. Of orchard trees, the apple is the favorite, with peach and pear trees second, and all others, even grape vines, come in for some share of attention. In the case of large trees only slight and temporary injury is done, but with young orchards and nursery stock the result may be fatal unless some protective measures are adopted.

Fear aroused by the presence of this insect in great numbers is out of proportion to the real damage likely to be done. People in infested sections should not become unduly alarmed, but should apply such methods of control as are possible. In young orchards and nurseries the safest method is the hand collection of the insects at the time of emergence or as soon afterwards as possible. Every cicada tries to climb some plant or tree immediately after coming out of the ground, and great numbers of them can

be shaken off and collected in bags or umbrellas. This practice may be continued for an indefinite time after emergence, and the work should be done very early in the morning or late in the evening, when the insects are somewhat torpid and sluggish. If undertaken at the first appearance and repeated each day, control will be facilitated by the fact that most of the insects will be on the young trees or short branches or on the lower branches of large trees and within comparatively easy reach.

Insecticides Are Effective.

The destruction of the cicada may be accomplished with insecticides, if applied at the moment of emergence from the ground or shortly after it has shed its pupal skin and is still soft and comparatively helpless. This kind of work can be made very successful in small areas, but could not be applied on a large scale. Best results are obtained with pyrethrum powder, kerosene emulsions, a 2 per cent solution of carbolic acid, or a 15 per cent solution of acetic acid, sprayed directly on the insects.

Not much success has been attained with washes or other applications to prevent oviposition. Ill-smelling substances appear not to repel the cicada. There are some indications that the insect dislikes to sit on a white surface, and therefore whitewash is believed to possess some efficacy as a preventive of oviposition, though the cicada will oviposit on whitewashed tres if no more pleasing place can be found. A spray of Bordeaux mixture is also believed to have some value as a preventive.

Certain precautionary methods, however, are of more importance than the curative ones. In all regions where there is to be an appearance of the cicada all pruning operations should be neglected during the preceding winter and spring in order to offer a larger twig growth, and thus to distribute the damage over a greater surface. The planting of young orchards should be deferred until the danger is past, and the same advice applies to budding operations in the spring prior to the cicada's appearance.

A BOY'S BIG PROFIT ON ONE PIG.

From Blackwell, Tex., comes the report of the worth-while achievement of a 15-year-old boys' agricultural club member, Kenneth Campbell. This little live-wire pig raiser sent his pig to the Fort Worth Fat Stock Show. It turned out to be the grand champion barrow of the whole exhibit. It won $105 in prizes and sold for $115. The initial cost of this prize winner was $5 and $34.60 was spent for feed, leaving a net profit of $180.40.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 12.*)

out in the spring. The prospects of continued remunerative prices for fruits should be an incentive to give orchards all needed care to maintain them in productive and vigorous condition.

Commercial lime sulphur concentrate is the principal insecticide used for San José scale spraying. It is usually sold of a density of 33° on the Baumé scale, and when of this strength should be used at the rate of 1 gallon to from 7 to 9 gallons of water. In spraying for San José scale very thorough work is essential, since only the insects actually hit with the spray are destroyed. The spray pump used should develop good pressure to insure thorough work.

During recent years many apple growers have adopted the so-called "delayed dormant" method of spraying. Briefly, this consists in deferring the San José scale treatment until the tips of the buds of the apple are showing green. By adding to the lime-sulphur solution 40 per cent nicotine sulphate at the rate of 1 part to 800 or 900 parts of water an effective combination treatment can be made for the San José scale and apple aphids which congregate on the opening buds.

Necessary insecticides should be obtained or contracted for, so that nothing will interfere with carrying out an effective spray program.

ORGANIZE FOR BETTER HERDS.

The cooperative bull association is an effective organization for freeing a community from the exasperating experience of the scrub bull that roams at large. There is scarcely a breeder who has not experienced keen disappointment and financial loss through unrestrained scrub bulls. In the territory covered by a cooperative bull association in one State only one scrub bull was found where, prior to the organization of the association, there had been 30 scrub bulls. The 30 scrubs have been replaced with 5 registered bulls. The organization of farmers into an association for the purpose of introducing bulls of merit of a single breed and the elimination of the scrub bull signifies that a definite plan for community herd improvement has been agreed upon.

There is at present a widespread interest on the part of individual farmers in herd improvement through the use of better sires. The winter season affords an opportune time to discuss the subject with one's neighbors and to perfect the organization of such an association. Farmers' Bulletin 993—Cooperative Bull Associations, which may be secured through application to the United States Department of Agriculture, gives information regarding these associations and practical methods of forming one.

MAKE PLANS FOR THE FARM WOODLAND.

The various demands which the war made upon the farm woodlands in the way of wood fuel, walnut for gunstocks and airplane propellers, locust for tree-nails, oak and hickory for vehicle construction and other purposes, to say nothing of the numerous lesser demands, have brought woodlands more directly to the attention of farmers than ever before. During the next month or so, before the spring planting season begins, farmers should decide definitely what land is to be kept in woods and what is to be cleared for farm purposes. On many farms there are small areas unprofitable for farm purposes which should be reforested as soon as the price of nursery stock and labor become normal. Now is the time to make the plans for the future, laying out with the assistance of the county agent a program of woodland improvement which shall have for its object the growing on the land available of the greatest possible amount of the most valuable or most rapid growing trees. Then, as time and labor become available, the plans can be carried out. The poorer species of trees should be gradually eliminated and openings in the woodland filled in just as the farmer replants the failed place in his cornfield. A few days spent now in carefully considering these subjects will bring ample returns in the future.

COOPERATIVE SHIPPING PAYS.

Ten cars of hogs were shipped on the cooperative plan out of Smith County, Tex., this season. The amount received by the 218 shippers was $27,367.27, reports the Smith County agent of the United States Department of Agriculture and the Texas A. and M. College. The 1,002 hogs brought an average of $2,736.72 a car.

Animals on hand in the service of the War Department November 2, 1918, were 113,725 cavalry and riding horses, 186,348 draft horses, 144,611 draft mules, 17,298 pack and riding mules, and 15,280 unclassified animals, making a total of 477,262 animals ready for use.

Why Pink Bollworm Fight Is "Biggest Successful Entomological Experiment"

Searching for a small, thin, rose-tinted, almost white caterpillar in 10,000 acres of Texas cotton land, confronted with the necessity of making certain that in all that area no single caterpillar made good its concealment in boll or stalk or under leaves or grass or trash, forced to sweep every inch of the 10,000 acres as closely as a scrupulous housewife sweeps the kitchen floor, and to sift every pint of the sweepings as carefully as a miser would sift dirt with gold nuggets in it—there is a task beside which the one of searching for a needle in a haystack appears simple and as requiring no patience worth mentioning.

But that is exactly what the United States Department of Agriculture, with the help of the State authorities of Texas, did in the campaign for the elimination of the pink bollworm of cotton. It was done so successfully that not a single egg, larva, or moth of the pink bollworm appeared last year, a result that appears to justify the characterization by the Secretary of Agriculture of "the largest successful entomological experiment of its kind in history." It is just that—if it is successful. But the Department of Agriculture will not regard the success of it as finally assured until two other summers have passed. Then, if diligent search has still failed to reveal any evidence of the pest anywhere in the infested area the end will be regarded as attained.

Discovery Alarmed Scientists.

When it was found that the pink bollworm of cotton had got a footing upon the soil of the United States, the consternation was hardly less than it would have been if the discovery had been made at the same time that Hun gunboats were coming up the Mississippi River. But the consternation was among agricultural scientists. The general public did not know the desperate danger. But the scientists knew that, unless checked, the little worm meant an annual loss of not less than $50,000,000, if, indeed, it did not threaten the existence of the cotton industry, and their alarm was not materially lessened because the infested area was limited to small areas around Trinity Bay, Beaumont, and Hearne, Tex. For the pink bollworm spreads, not by yards or acres, but by hundreds of miles at a leap. The chief agent of dissemination being man with his railroad trains, the distance from Texas to Georgia or North Carolina is no great jump—and it probably would not be a direct jump. The overwintering larva would be loaded into a car of cotton at Beaumont, say, shipped to New Bedford, Mass., and left in the litter at the bottom of the car, which would then go to Brockton for a load of shoes consigned to Atlanta, and would finally get swept out on some siding in the Georgia cotton fields.

And there it would begin anew the devastation that it has wrought in Egypt, India, Japan, the Philippines, Ceylon, the Straits Settlements, the Hawaiian Islands, Brazil, Mexico, and practically every cotton-growing country on the globe except the United States. It is the most destructive of all enemies of cotton, often reducing the yield of lint by 30 per cent and sometimes by more than 50 per cent, and greatly lessening the quantity of oil produced from the seed. In the Hawaiian Islands the cotton industry has been practically abandoned because of it, and wherever it has gone the industry has suffered terribly. That is why the Department of Agriculture, when the worm appeared in Texas, thought it worth while to undertake a campaign out of all proportion to the area infested.

Storm Brings More Worms.

The danger from the pink bollworm had been long recognized, and regulations were made by the Department of Agriculture requiring the fumigation of all cotton from foreign countries before it could be landed in the United States. Every possible precautionary measure was taken, but there came one thing against which even the Government could not guard. The great storm that ravaged the Gulf country in 1915 washed ashore around Trinity Bay and possibly elsewhere on the Texas coast great quantities of cotton lint and cotton seed. Nobody gave any special thought to the matter at the moment, but when the next year the pink bollworm appeared all around the bay, it became apparent that some of the washed-up cotton must have come across the Gulf from the Laguna district of Mexico, where the pink bollworm had gained a footing some time earlier. That may not have been the only source of infestation, but it was the one that gave the greater part of the trouble. An oil mill at Hearne had received some seed from Mexico in 1916, and the bollworm appeared in a few fields in the immediate neighborhood of the mill, but the infestation at this point was entirely eliminated in short order by uprooting and burning all growing cotton, collecting and burning all scattered parts, the prompt milling and destruction of the seed, and the shipment to Europe of the harvested lint.

Infected Shipments Traced.

A mill at Beaumont, too, had received seed from Mexico and had violated its agreement to use it only for milling. It developed that some of this seed was sold to planters throughout a radius of 20 or 30 miles from the mill. Each sale was traced and the surrounding district included in the clean-up operations.

But it was the washed-up cotton infestation at Trinity Bay that developed the really alarming situation, involving more than 6,000 acres of cotton surrounding the bay, and it was there that the really big operations were undertaken.

A large force of experts and laborers—not less than 800 employed negroes, together with the voluntary assistance of any number of farmers and members of their families—was assembled, camps were established, and the clean-up was begun on a thoroughly systematized plan that involved every inch of surface, to make sure that no lurking place was left for a larva to winter. All the cotton grown in this area was taken to Galveston under supervision and shipped to foreign countries. All seed was milled under the direction of Government agents. The Texas State department of agriculture cooperated heartily to the extent of available funds. The work ended with the whole area as clean as the top of a table.

The result, naturally, was awaited with much anxiety. In the spring of last year the entire area was watched. The planting of cotton was prohibited, of course, and every stalk of volunteer cotton was pulled up and destroyed after careful examination. At the end of the season the reports of all the investigators showed that absolutely no evidence of the presence of the bollworm could be found.

Cotton-Free Zone Established.

Prior to the discovery of the actual presence of the pink bollworm in Texas the State, taking precautions against its presence not far away in Mexico, had enacted legislation giving authority to establish a zone free from cotton culture on the border of Texas adjacent to Mexico. Since that time, quarantine and cotton-free zones have been declared in three areas. No. 1 is small, including merely an area 6 miles in diameter around the oil mill at Hearne. No. 2, the Trinity Bay and Beaumont district, includes the counties of Jefferson, Galveston, Chambers, and portions of Brazoria, Fort Bend, Harris, Liberty,

and Harding. To this was later added a small area with Arcola as the center. The extension was based on the finding of a single specimen in a field near Arcola. The border noncotton zone includes the land within 25 miles near the Mexican border, near Eagle Pass, covering the counties of Kinney, Maverick, and Valverde. The growth or transportation of cotton or any cotton products is prohibited for three years, or so long as the pink bollworm menace exists.

The normal planting of cotton in zone No. 2 alone is about 50,000 acres and the inability to plant has, of course, entailed hardship on the planters. A few individuals—137 to be exact—disregarded the law and planted some cotton, a total of a few hundred acres. Legal action was taken against them and they have since signed an agreement to bear all the cost of cleaning up their farms, under supervision of the Department of Agriculture, and to leave the disposal of the cotton grown absolutely in the hands of the authorities. It happens that these fields are in parts of the quarantined area which were very sparsely or not at all infested in 1917, and the clean-up of old cotton and the destruction of the hibernating larvae in old bolls was so thoroughly done during the fall and winter of 1917–18 that very little danger really attached to the planting of these fields to cotton in 1918. With the passage of an additional year, the situation is regarded as sufficiently safe that permission has been given for the growing of cotton under certain conditions, with the reservation that the growing crop is to be destroyed at the owners' expense if any evidence is found of the presence of the bollworm.

Danger of Reinfestation.

While a feeling of reasonable safety is justifiable as to the elimination of the bollworm from Texas, the danger of new infestations remains so long as the bollworm exists in Mexico—and that may be forever, since it is regarded as practically impossible to eliminate the pest from any very large area in which it has become thoroughly established. Mexico has taken measures to prevent the spread beyond the Laguna and two other isolated areas opposite Eagle Pass, but the United States has, nevertheless, made applicable to the whole of Mexico its regulations as to the entry of cotton.

All railway cars and other vehicles coming across the line are inspected, cleaned, and fumigated. The disinfection of cars and freight with gas from generators placed within the cars has been discarded as giving no security against insects that might be resting on the exterior of the cars. Disinfection houses have been erected into which cars are run and disinfected both internally and externally. Such a house is provided at each port of entry—Laredo, Del Rio, Eagle Pass, Brownsville, and El Paso.

There will be no relaxation of vigilance against an insect that ranks as one of the half dozen worst insect pests in the world, an insect that has been under investigation, more or less, since 1843, but for which no effective control means has ever been found. The pink bollworm appears to be peculiarly immune from parasites and other natural enemies. Neither predacious insects nor birds can reach the larva, hidden away inside the cotton boll, and the moth is so secretive as to be well-nigh immune from molestation. Treatment with insecticides has not proved efficacious and the only known way of escaping great loss is to prevent the establishment of the pest.

How the Worm Destroys.

The small brown moth of the pink bollworm deposits her eggs on the outside of the cotton boll where they hatch in a few days and immediately burrow into the boll, eating away the partition walls and, later, the seeds. The larva ordinarily pupates inside the boll but, if disturbed, may seek a place underground or in rubbish to spin its cocoon. The larval life is usually accomplished in from 20 to 30 days, but it has been demonstrated that, in baled cotton, the larva may live for 18 months and, if conditions become favorable, transform successfully. This possible suspension of larval development through long periods makes its spread by cotton shipped from one section to another unusually likely to occur, and renders of uncertain value any storing of the seed as a safeguard.

The original home of the pink bollworm was undoubtedly South Asia, and particularly India. It was first observed in India in 1843 and its migrations to other cotton-producing countries can probably all be traced to shipments of seed, first from India and more recently from Egypt and other countries.

The summer of 1919 will probably show whether or not the fight against the pink bollworm in the United States will have to be continued or whether the work of elimination and the safeguarding of entry has already been so effectively done that no further active elimination work will be necessary. While making no positive claims, the experts of the Department of Agriculture who have had the work in charge are sanguine of success.

AVERAGE NEED FOR POTATOES.

Potato growers who habitually plant a fairly uniform acreage are more likely to make a consistent profit than growers who try to adjust their acreage to temporary conditions, says the United States Department of Agriculture, reviewing the potato situation in a circular just issued, "Crops and Live-stock Production in 1919."

It is shown that stocks of marketable potatoes in the United States on January 1 of this year were nearly normal, the Northern and Eastern States having slightly smaller and the Southern and Western States slightly larger stocks than the average. It is also pointed out that potatoes are subject to wide variation in yield because of weather, diseases, and insects, and the conclusion is drawn that growers are justified in planting an average acreage this year.

Attention is called to the fact, however, that the present and prospective large supply of wheat in the United States may tend to reduce the consumption of potatoes.

PLENTY OF GOOD SEED CORN.

A generally favorable maturing season last year has insured a plentiful supply of germinable seed corn. In some cases, drought reduced the quality of grain sorghum and broom-corn seed, and germination tests are urged for those sections. Flax production was short in eastern Montana and western North Dakota, where a large portion of the flax acreage is grown, but, since seed grown in that section is more likely to be free from weed seeds and flax diseases than seed grown farther east, Montana and North Dakota farmers are urged to make every effort to obtain good seed in their own localities. The Department of Agriculture is locating good seed supplies in North Dakota, Montana, and Minnesota and making their location known to those wishing to purchase.

The treatment of seed grain to prevent fungous diseases is pointed out as probably the most important work in connection with spring sowing in 1919.

TOBACCO STOCKS ALWAYS BIG.

A remarkable feature of the tobacco manufacturing industry is the fact that the stocks of tobacco leaf carried by dealers and manufacturers at any time of the year equal or exceed the quantity of the previous crop, no allowance being made for difference of moisture content. Stocks are lowest about midwinter and highest in the spring.

More than one-half of the cotton crop of 1918 grew in Texas, Georgia, and South Carolina.

How a Utah Girl Worked to He'p Back Up Her Cousins "Over There"

"I am going to take the first prize in gardening away from the boys at the Utah State Fair in 1919," is the challenge of S. Ethel Lyngberg, a 15-year-old member of a boys' and girl's club in Salt Lake County, Utah, conducted under the direction of the United States Department of Agriculture and the State agricultural college. It looks as if her prediction may come true, for already this industrious young woman has made a rather remarkable record. She began her club work at the age of 11, and in the following year her exhibits took first prize at the grade school, first prize at the high school, and second prize at the State fair. When she finishes her course at high school she is going to enter the Utah Agricultural College.

In addition to plowing, harrowing, and leveling 60 acres of land and helping her father with other farming operations—doing for him all that a boy of her age could do and much more than many boys would be willing to do—this young food producer this year raised and sold an abundance of garden produce; put up 600 quarts of fruit and vegetables, besides drying a quantity of them; raised 100 chickens; knitted socks for soldier relatives overseas; and bought Liberty bonds to back them up. But let her tell her own story:

"I was born and raised in Salt Lake City. When I was 8 years old my father moved to his farm in Pleasant Green near Utah Copper Mills and Garfield Smelter, Salt Lake County, Utah. It was covered with sage brush and rock, which had to be removed.

Helped Plant 1,500 Fruit Trees.

"The following spring we cleared a part of the land and planted 1,500 fruit trees. We also engaged in truck farming that season. I, the oldest girl of a very large family, assisted my father in every way I could. He always enjoyed instructing me, and he explained every little question I asked him. He taught me how to plant small seeds by mixing them with sand, scattering it along the trench, and covering with a hoe. Also he taught me how to plant vegetables and how to cultivate. We raised an abundance of tomatoes, cabbage, cauliflower, peppers, egg plant, and also 1,600 bushels of carrots and 200 bushels of potatoes.

"The next year I assisted again, and the following year—I was then 11 years old—he gave me a small space of my own, which he plowed for me. He made me plant everything myself, also do the weeding and hoeing. I raised an amount of garden truck and took it to town and sold it. The next year—at the age of 12—I was attending school in Hunter when they started a boys' and girls' club. When I joined my father said I would have to learn to plow, so he bought me an 8-inch plow. I plowed about half an acre; then he allowed me to drive three horses with a sulky plow. I plowed 20 acres for him that year and mowed 33 acres of alfalfa hay. My sister raked it, and we all bunched it and I helped stack it. I raised 9 different kinds of tomatoes, 6 different kinds of peppers, cauliflower, cabbage, and peanuts, and 72 different kinds of flowers. I took first prize at the grade school and first prize at the high school and second prize at the State fair.

Plowed 60 Acres Herself.

"Last year I plowed, leveled, and harrowed 30 acres and cut all father's hay, put up 300 quarts of fruit and vegetables, and had a war garden. This year I plowed 60 acres all myself, harrowed and leveled it—wheat, alfalfa, and beets—and helped father plant and cut and irrigate. I have put up fruit and vegetables—600 quarts—besides drying vegetables and fruit, and have baked the bread, and on Saturday and after school I will have to plow until the ground freezes up, and finish in the spring, 1919. I am going to take the first prize away from the boys in gardening in the Utah State fair.

"I attend the Cypress High School. When I finish there I am going to go to the Utah Agricultural College.

Raised 100 Chickens.

"I also raised 100 chickens this year. I joined the Soldiers of the Soil, and with $15 I borrowed in June I bought 105 baby chickens and raised 100 of them. In June, 1919, I will pay off my note. I am going to market all my roosters and keep the pullets. I could pay the note now, but I am going to lend it to Uncle Sam on the fourth Liberty bond for our boys over there. I have found time to knit socks for some of my cousins over on the firing line.

"I would like to have the boys and girls join the Utah boys' and girls' club. If they only knew how much they could learn they would all join."

LARGE PRODUCTION DOES NOT CUT PRICE OF WHEAT AND OTHER CROPS

It is often said that when the farmer has a bumper crop the price is so low that the total value of the crop is below that of a usual crop, but the abnormal conditions created by the war and other causes have imposed a special relationship of crop prices and total value to the production of 1918 in comparison with 1917.

In the estimates of the Bureau of Crop Estimates it appears that larger production has been followed by lower price and lower total value only for barley, cabbage, onions, and broom corn, while larger production has been followed by higher price and hence by higher total value for wheat, buckwheat, flaxseed, rice, sweet potatoes, tobacco, apples, oranges, and cranberries.

As is often the fact, lower production is associated with higher price and higher total value for oats, hay, sugar beets, peaches, and sorghum raised for sirup, but exceptions to this relationship are found in potatoes and hops, both of which had lower production and lower price.

Rye, cotton, the kafirs, and peanuts had a higher production in 1918 than in 1917 and a lower price, but not low enough to prevent a higher total crop value; whereas these conditions were reversed for corn and beans, both of which had smaller crops and higher prices, but not high enough to prevent a lower total crop value.

SWEET POTATO STORAGE ESSENTIAL.

Nearly every farm in the South grows enough sweet potatoes for home use and usually a surplus that either is fed to live stock or marketed locally. Unquestionably there is a great opportunity open to the farmers of the South to grow sweet potatoes for the northern markets, the main essential being the provision of storage facilities in order properly to cure and warehouse the crop until prices justify the marketing of the product. The farm storage for sweet potatoes is of simple construction. Full information relative to the proper methods can be had in bulletin form, free of charge, by addressing the United States Department of Agriculture or the extension divisions at the State colleges.

Two-thirds of the flaxseed production of 1918 came from North Dakota and Montana.

The foliage of stone fruits, as cherry, plum, and peach, is on the whole quite tender, and the arsenical sprays should be employed with caution. Arsenate of lead is least likely to do harm, though more than two applications especially to peach, may cause shotholing and dropping of leaves, and burning of fruit.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Pork from Town Pigs.

One town of 2,000 people in Georgia produced 35,000 pounds of pork from pigs raised in back yards during 1918. The production of this meat was stimulated largely by pig-club work conducted by the State college of agriculture, in cooperation with the United States Department of Agriculture.

Helping to Keep Roads Open.

Help given last winter by the Weather Bureau in keeping the Lincoln Highway open between Harrisburg and Pittsburgh, Pa., during the season of heavy snows is being arranged this year for portions of New York and New Jersey. The bureau has called the attention of its officials in charge of stations to the service they may give the public by cooperation with State highway commissions, automobile associations, and others in keeping open main highways, especially those used for rural express, motor-truck, and parcel-post routes. The work in the winter of 1917–18 was in cooperation with the Pennsylvania State Highway Commission. Reports of the amount and condition of snow were made by the assistant superintendents of highways at points along the Lincoln Highway to the Weather Bureau office at Pittsburgh, which bulletined the reports to the press, automobile clubs, and motor-truck associations. The official in charge at Pittsburgh also issued warnings of heavy snows for the mountain regions of western Pennsylvania, based on the State forecasts. These were furnished to the press and telegraphed to the State superintendent of highways, who gave instructions to his assistants for keeping the routes open.

33 Acres, 23 Pigs, Give Boys $2,255.64.

Twenty-three boys under 16 years of age, in a Haywood County, Tenn., pig club, each bought a pig. The average weight of the pigs was 78 pounds. Most of them were registered. In 180 days they produced a gain of 266 pounds each, at a cost for feed of 10½ cents a pound. These pigs at the time of the local pig-club show were worth 15 cents a pound at meat prices, making a profit of 4½ cents a pound, averaging a net return to each boy of $11.97 over cost of all feed—a total gain for the club of $275.31.

Now, see what the corn club in the same community has done: Thirty-three boys, 16 and under, each cultivated one acre in corn, according to instructions furnished by the county agent, produced an average of 53.1 bushels to the acre at $1.40 a bushel selling price—$74.48—making a total production for all of $2,457.84. Cost of raising the corn was 27½ cents a bushel, or a total cost of $477.51, leaving a clear profit of $1,980.33.

Now add to this the pig-club profits of $275.31 and you have a grand profit for the boys of $2,255.64 from 33 acres of land and 23 small pigs.

"Keep the Home Cow Milking."

Down in Florida the home demonstration agents of the Department of Agriculture, in cooperation with the State colleges, are preaching and teaching "more milk for the children," as they are in every other part of the country. It is a difficult task, however, to help the mothers put milk into their children's diet in a country still in the cattle-tick zone, and where cows are scarce. Many families have no milk or butter because of the expense. Much of the milk used is imported from other States, some even coming from New York. Many Florida children have never tasted milk.

Confronted with these conditions, the home demonstration agents are lining up with the forces which are working to put Florida in the tick-free zone. The slogan above and "a cow for every Florida family" are typical of those being used to forward the movement which will give the Florida boys and girls the milk they need.

$177,806 Saved by Selling Slacker Hens.

A saving of $177,806 worth of grain was effected by the culling out of slacker hens in 45 counties of Missouri as the result of a poultry-culling campaign conducted by the United States Department of Agriculture and the State College of Agriculture. The demonstrations were attended by 17,145 persons. A total of 7,383 flocks were culled, representing 744,446 hens examined, which resulted in the elimination of 282,698 low-producing hens that otherwise would have been permitted to remain on the farms as consumers of grain. The estimated saving probably is too low, as it was assumed that each culled hen would have paid for her keep after February 1, which is probably not the case.

Farm Bureau Wins Popular Support.

When the question arose last year of whether or not it was advisable to continue the farm bureau work in three Michigan counties the matter was submitted to the people and a vote was taken. The result cleared away any doubt that may have prevailed in these counties, for a large majority showed by their votes that they regarded the work as essential. In Delta County this was merely a reaffirmation of faith, for farm bureau work was first started by popular vote in that county. Grand Traverse and Manistee Counties, by their votes, placed their indorsement unmistakably on the work.

Will Combat Onion Diseases.

Onion growers in many sections of Pennsylvania are preparing to combat onion diseases this year as a result of onion-smut control demonstrations held in the State last season. A report received by the United States Department of Agriculture from the Extension Plant Pathologist in Pennsylvania gives the results obtained at two of these demonstrations. The treatment consisted in the application by means of a drip attachment on the seeder, of a formalin solution (1 pint to 16 gallons) to the seeds after they are dropped in the furrow and before they are covered. On a plot treated for onion smut the yield was at the rate of 680 bushels an acre. On a similar untreated plot it was 360 bushels. The increase as a result of treatment was 96 per cent, and the cost was only $2.40 an acre. In the other demonstration mentioned in the report the yield on the treated plot was at the rate of 420 bushels an acre, and on the untreated only 180 bushels, the increase being 133 per cent, and the cost an acre $3.40.

How Kansas Fought Grasshoppers.

It is estimated that Kansas farmers last year saved about $5,000,000 on wheat and alfalfa as a result of grasshopper poisoning, a large part of which was due to a campaign begun last spring through

the cooperative efforts of the United States Department of Agriculture, State Agricultural College, and local county agents. A grasshopper-egg survey, made in the spring, showed that they were present in sufficient numbers to make necessary a summer campaign against the hoppers. Plans were made immediately to carry on this work through meetings to demonstrate poisoning, personal farm visits for individual demonstrations, and by appropriate window displays in towns. A close watch of the grasshopper situation was kept throughout the entire season, and in the fall the poisoning campaign was continued, and the disking of land to destroy eggs was advocated also. To teach the advisability of the latter, demonstrations were held in the field where patches of grass were dug up and the grasshopper eggs which they contained were shown to farmers. Then the field or fence row was disked to show how the eggs were destroyed. Fifty-one such demonstrations, with an attendance of 1,263, were held. In many counties both bran and poison were bought cooperatively and distributed to farmers through the farm bureau organizations. Each one getting the materials received directions for mixing and applying them.

Fighting Cattle Scabies by Dipping.

Every herd of cattle in Hughes County, S. Dak., infected by cattle scabies or exposed to the infection was put through dipping tanks after the farm bureau aroused public sentiment in favor of stopping the losses from disease. The county commissioners were induced by the bureau to build two cattle dipping tanks. These, with three privately owned tanks, furnished baths for 10,525 cattle. Twelve meetings to organize for the dipping demonstrations were attended by 382 stock owners, 92 per cent of all of them.

"Smoke Screen" Saves Potatoes.

A member of the farm bureau in Hardin County, Ohio, saved a 20-acre field of late potatoes from frost last fall by the use of a smudge. The potatoes had made practically no growth during July and August because of dry weather, but were maturing in good shape when, on the night of September 21, the temperature dropped below the freezing point. Preparations had been made for just such an emergency. Baled straw had been placed in readiness, and at 10.30 that night the fires were started. It was found that a heavy smoke could be made by using wet straw after the flame had been applied. Fires were kept burning in 102 places, and it is estimated that 10 tons of straw were used. The entire field was kept covered with smoke, and after the sun had been up a few hours the following day it was plain that the potatoes had been saved. The potatoes remained green until October 1. Other foliage, not completely covered with smoke, was killed by the frost.

Importance of Right Variety of Crop.

The importance of selecting a crop variety that is suited to the section in which it is grown is indicated in a number of varietal experiments conducted at various field stations last year. In cooperative experiments at the Dickinson substation, North Dakota, a number of varieties of common wheat grown under similar conditions produced yields which varied from 19.4 bushels an acre to 11.3 bushels. The variations in yields of varieties of durum wheat were from 20.2 bushels an acre to 13.2 bushels. A wide variation was obtained in similar experiments with oats, the range being from 49.5 bushels an acre to 19.8 bushels. Barley showed a variation which ranged from 23.6 bushels an acre to 9.7 bushels. At the Cheyenne field station in Wyoming varietal experiments with winter wheat gave yields which ranged from an average of 35.5 bushels an acre to 28.4 bushels; with spring wheat, 41.2 bushels to 15.5 bushels; with oats, 79.6 bushels to 37.8 bushels; with barley, 73.1 bushels to 41.4 bushels. At the Nephi substation, in Utah, cooperative results with varieties of winter wheat showed a variation ranging from 23.3 bushels an acre to 2.2 bushels, and with spring wheat from 15.7 bushels to 6.3 bushels. Similar experiments conducted in California with wheat showed a variation in yield ranging from 50 bushels an acre to 12.5 bushels. In a series of years the average yields of varieties usually do not vary so widely as these yields of a single year, but it is generally found that certain varieties give better average yields than others and are therefore more profitable.

Cooperation in Connecticut.

Twenty-seven cooperative organizations of farmers are in successful operation in Connecticut. Location of these enterprises and their nature is shown on a map, which Guy C. Smith, field agent in marketing for the Connecticut Agricultural College, prepared for exhibition during Farmers' Week at Hartford in January. Twelve of the associations are strictly buying concerns, organized to enable farmers to buy in quantities, and to get quality and fair prices through expert purchasing. Three organizations operate cooperative milk plants. One is a fruit-marketing association and has been notably successful. Six are market-gardening associations and five are tobacco-marketing associations. Most of these organizations have been perfected by and receive help from the county farm bureaus. Connecticut farmers are learning to "pull together."

Dairy Cows to Solve Farm Problems.

More good dairy cows for Louisiana is one of the objects State dairy specialists cooperating with field men of the United States Department of Agriculture are working for. It is pointed out that the keeping of dairy cows will help the average farmer to overcome three main drawbacks to the one-crop system of farming: A cash income only once a year, a depleted soil, and unequal distribution of labor. For the farmer who does not have a ready market for dairy products a few cows will provide the cheapest and best of human foods. The cows will consume much of the rough feeds that usually go to waste, and they, therefore, can be kept at little expense. For the farmer who has a good market, dairying is a most profitable business, is always a safe and sound line of farming, is least affected by sudden changes of weather and seasons, gives a ready cash income, builds up the soil, and provides employment for labor at all seasons.

Campaign for Better Cotton.

Because the best yielding varieties of cotton produce 20, 30, and even 40 per cent more than the poor varieties, as shown by experimental results, a campaign is being waged in Louisiana by the State Agricultural College, in cooperation with the United States Department of Agriculture, to secure the planting of only high-yielding varieties. It is emphasized that whatever variety is planted, it should be pure; that is, every stalk should be similar in appearance and in productive capacity to every other stalk. The mixed or hybrid variety will never do this, for many of the stalks will be barren or will be "shy" producers. It is also emphasized that the cotton grower should not depend wholly upon improved seed as his means for increasing yields, for a fertile soil is the most important feature in successful cotton growing. "It is a very poor policy," say officials in charge of the campaign, "to plant very poor land in cotton at all."

Culls Half of Flock; No Egg Loss.

That it does not pay to keep poultry in the winter—that is, some poultry—has been demonstrated to at least one West Virginia poultry raiser and his neighbors. Last fall he followed the advice of the

poultry extension specialists and culled his flock. From a flock of 81 hens he culled out 39 and sent them to the market. To his surprise the remaining 42 birds produced as many eggs as the original flock and his feed bill was nearly halved.

Mission Olives a Group, Not a Variety, Department Survey Shows

It has long been recognized by olive growers in California and Arizona that there was considerable difference in the size, quality, and time of ripening of fruits of the so-called Mission olive, the most important in the olive industry. A survey of a number of Mission orchards by representatives of the United States Department of Agriculture has confirmed the view long held by olive growers that the Mission is in reality a group instead of a single variety.

Within the Mission group there are several distinct varieties, which have characteristic foliage, marked differences in shape of the fruit, and differences in time of ripening. In many orchards there is not uniformity, and three or four distinct varieties of the Mission group were found. If growers and nurserymen will study carefully the trees from which propagating material is taken it will then be a relatively easy matter to segregate the nursery stock of the different Mission varieties. If this is done orchards planted with such stock would contain only one variety, with the result that the product would be practically uniform.

ORANGE CROPS IN FIGURES.

The estimated orange crop of California for 1918 is 14,322,000 boxes, or twice the production of 1917, but less than the crop of 1916 by 18 per cent. Florida's orange crop for 1918 is estimated at 5,265,000 boxes, or much more than the crop of 1917 and much less than that of 1916. Together, these two States in 1918 had an orange crop of 19,587,000 boxes, or nearly double the short crop of 1917. Orange exports were 1,575,000 boxes in the fiscal year 1916, 1,850,000 boxes in 1917, and 1,240,000 boxes in 1918. The imports were insignificant.

Rye, along with barley and buckwheat, has increased much in production to add to the war food supply. About 30,000,000 bushels, the limit of the crop before 1910, was followed by gains to 43,000,000 bushels in 1914, 63,000,000 bushels in 1917, and 89,000,000 bushels in 1918—by far the largest rye crop ever raised.

RED CLOVER ONLY BIG CROP THAT HAS SHORTAGE OF SEED

Farmers Urged to Avoid Waste and to Use Alsike as Substitute

Sugar-Beet Seed Must Be Economized to Protect 1920 Supply; Plenty For Leading Staple Crops of 1919

There is not enough red-clover seed to meet the demands upon that important legume as a restorer of soil fertility to American farms following the strain of war-time conditions—not enough, that is, unless farmers practice economy and good judgment in its use. Both the carry-over and the current crop of red-clover seed appear to be below normal, while the need for seeding a large acreage to red clover in the Middle and Northern States is greater than for several years.

This information comes from the United States Department of Agriculture in a circular, Crops and Livestock Production in 1919, just issued from the Office of the Secretary. To make the available supply of clover seed go as far as possible, farmers are urged to follow the best methods practicable in seeding and to avoid undue risk of waste of seed by attempting to secure stands of red clover on lands unsuitable either in character or condition for this crop. In some cases, it is pointed out, alsike clover can be substituted successfully, especially on lands too wet or too acid for red clover.

Sugar-Beet Seed, Too, Needed.

The necessity is pointed out, also, for conserving the supply of sugar-beet seed. There appears to be a sufficient quantity to plant a normal acreage in 1919, but the necessity under existing circumstances for protecting the supply for 1920 is so great as to make imperative the strictest economy in the use of the available supplies this year. Thorough preparation of the seed bed is suggested as one of the essentials to conservation. This promotes uniform germination to such an extent that the old seeding rate of 20 pounds to the acre has been reduced, in many cases, to 15 or even 10 pounds, with just as good results.

The supply of seed for the leading staple crops is shown to be adequate. In some parts of the Southwest and the Northwest, there are local shortages due to drouth, but in the main they are balanced by surpluses in surrounding sections.

BUCKWHEAT IS "COMING BACK."

Buckwheat is a minor crop that, in the census record, reached its highest production, 17,572,000 bushels, in 1859. Thereafter the crop dwindled to about one-half that quantity, but by 1879 it had recovered to 11,817,000 bushels, and this was approximately the census production to 1899. By 1909 this crop had gained so as to reach a production of 14,849,000 bushels, and the estimate of the Bureau of Crop Estimates for 1918 is 17,182,000 bushels, a restoration substantially of the production before the Civil War.

Prohibits Sale of Fertilizer Found to Be Misrepresented

The Secretary of Agriculture, on January 13, issued an order prohibiting the Nature's Fertilizer Co., 12 South Market Street, Boston, Mass., from selling their product, variously known as "Nature's Fertilizer," or "Nature's Plant Food and Soil Rectifier," "under any form of representation, direct or indirect, that it has a distinct value as a fertilizer or is equal or superior to the usual and well-recognized kinds of commercial fertilizer."

This order is the result of a very careful investigation into the merits of the product, including a three-day hearing in the Boston State House, at which witnesses in favor of and opposed to the product were given a full hearing. The conclusion is that the product contains only 4 per cent of potash, which is practically unavailable for plants, and that, therefore, there is nothing in the nature of the material to justify its sale as a fertilizer or plant food.

STOPS LIVE-STOCK IMPORTATIONS TO KEEP OUT FOOT-AND-MOUTH DISEASE

Following notification from British authorities that foot-and-mouth disease lately has broken out in England, the Bureau of Animal Industry has canceled all permits for importation of cattle, sheep, and swine from that country and is taking special precautions for the inspection and quarantine of such animals now en route to the United States. The outbreak in England was confirmed January 10 and reports were transmitted at once to the United States. Canadian officials also have been notified.

This is the second time within six months that the disease has appeared in England. The bureau is informed that British veterinarians have quarantined the infected area and the outbreak is under control, yet because of the constant communication between England and America it is extremely important that veterinarians and stock owners in the United States keep a sharp watch for the disease.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI FEBRUARY 12, 1919 No. 28

SECRETARY TELLS CATTLEMEN EUROPE NEEDS MEAT PRODUCTS

Advocates Regulation of Stockyards in Speech at Denver

Declares Administration of National Forests Should Remain with Department of Agriculture; Favors Regulated Grazing

Speaking before the American National Live Stock Association at Denver, Colo., January 22, D. F. Houston, Secretary of Agriculture, said that there will probably be a continuing demand from Europe for American meat products, reminded the cattlemen that live-stock production in this country has not kept up with increasing population, and advocated Government regulation of the stockyards and packing houses.

Mr. Houston also spoke in favor of improved grazing conditions in the national forests and replied to a proposal from the Department of the Interior that administration of the forests be transferred from the Department of Agriculture.

"Grazing, the handling of live stock, the control of predatory animals, of poisonous weeds, of reforestation, of marketing, are all agricultural problems," the Secretary said, "and the Department of the Interior could not properly deal with them unless it took over the Department of Agriculture or built up a duplicate of it."

Change in Two Years

"It is just two years, as the calendar runs, since I had the privilege of addressing the members of this association," said Secretary Houston. "I had the pleasure of attending your meeting in Cheyenne the latter part of January, 1917. But, when we consider what has happened since that time, it seems as if a quarter of a century must have elapsed. More history has been made in the two years than in two generations.

"I remember very distinctly with what feelings I left Washington to go to Cheyenne. I remember that Germany had made promise after promise and had outrageously violated each promise and disregarded her solemn word. As I left Washington, the question was whether another solemn promise of Germany would be broken. Then I not only desired to meet the members of this association to understand more fully what was in their minds and what we could do for them, but also to mingle once more with the people of the West to get a little reassurance. As my good friend Senator Kendrick will tell you, the waves of trouble, many of them real, many of them imaginary, beat in on Washington till the most hardened man gets a little sensitive, and if he does not look out, a little cowardly. In such circumstances, it is good for him to get away from Washington and to mingle with the people. At the time of my trip, there were a good many people in the East asking: 'What about the West? Are the people there not asleep?' A meeting had been held in

(Continued on page 11.)

NO POTASH FROM FRANCE BEFORE JUNE.

Even under the most favorable circumstances no potash from Alsace could be available in the United States for agricultural uses before June 1, 1919, according to an announcement issued by the War Trade Board upon authentic and official information to that effect, received from the French High Commission in the United States. France will be unable, according to the announcement, at least until April, to ship potash from the potash mines of Alsace. The advices further indicate that for the next few months practically the entire potash output of the Alsatian mines will be urgently required for agricultural purposes in France.

It is the view of the War Trade Board that it will be necessary for the United States to rely entirely upon its domestic potash production for the coming spring season.

Farmers' organizations or farmers who are in a position to buy potash in carload lots can secure it from some concerns at a reduction on the retail price at present quoted. The Bureau of Soils, Department of Agriculture, will furnish a list of American potash producers upon application.

NO ROMANCE BUT MUCH USE IN KILLING PRAIRIE DOGS

Rodents of Ranges Do More Harm Than the More Heroic Animals

Cooperation of Stockmen Asked in Campaign to Rid the West of Destructive Pests That Cut Food Production

The great gray wolf has slain his thousands, but the prairie dog has slain his tens of thousands.

Thus might the story of Saul and David be paraphrased on the great open ranges of the west, where there is no homeward lea for the lowing herds and where the sheep are not gathered at twilight into the sheepfold.

There was a time, now happily fading into the dim past, when predatory animals destroyed live stock to the value of $20,000,000 a year, but every year, down to the present time, rodents destroy on those same ranges forage that would be worth $150,000,000 a year as pasturage for cattle and sheep, beside grain crops of equal value—a destruction of that much potential live-stock value.

These figures were brought out by Dr. E. W. Nelson, Chief of the Bureau of Biological Survey of the United States Department of Agriculture, in a paper read before the American National Live Stock Association at the recent annual meeting in Denver. The purpose of the comparison, primarily, was to convince live-stock men of the range country of the necessity of closer and more active cooperation with the Government in the destruction of such rodents as the prairie dog, the ground squirrel, the jack rabbit, and the pocket gopher.

Hard to Combat Rodents

It is no easy task. Getting the cooperation of the range stockmen in the destruction of predatory animals was not easy, but this rodent business is many times harder, because it is so much more prosaic. There is a powerful dramatic ap-

peal about the destruction of live stock by predatory animals.

Away out in a remote and snow-drifted draw, separated from the herd, an old cow stands between a fir tree and a bowlder, her calf behind her, desperately defending it against a ring of wolves capable of playing a waiting game through the long night. This is a scene, common enough in the West, about which artists painted vivid pictures and authors wrote stirring stories, mighty good press-agent material for the Department of Agriculture's predatory animal campaign. But who would write a story or paint a picture about a prairie dog running out of its hole and filling its belly with grama grass?

Then, too, there is a mighty lure about the work of predatory-animal destruction. There are millions of boys—and hundreds of thousands of "boys grown tall"—who envy the men employed by the Department of Agriculture to hunt down the mountain lions, big gray wolves, and coyotes over the vast reaches of range land in the West. There is fascination in the fact that they actually take a census of the animals they are to destroy, and then proceed "according to schedule."

Gray Wolf Is Going

These hunters know, for instance, that when the war on predatory animals began in 1915, there were 300 gray wolves in New Mexico. They know that there are now not more than 20 gray wolves left in the State, and these 20 will be relentlessly hunted down until not a gray wolf is left.

Practically the same thing is true in all but one or two of the stock-growing States. Since 1915, when the stockmen secured a Federal appropriation for the use of the Biological Survey in destroying these pests, more than 200,000 stock-killing predatory animals have been destroyed. Fully three-fourths have been coyotes, but more than 2,000 gray wolves are included. It is estimated that each wolf on the range destroys not less than $1,000 worth of stock each year, and those 2,000 wolves, if they had not been destroyed, would mean a loss of not less than $2,000,000 to the stockmen annually. Other great stock losses would have been caused by the 240 mountain lions and great numbers of other predatory animals that have been killed.

"We have every reason to believe," Dr. Nelson says, "that if we are permitted to continue the work on a proper scale we shall, within a few years, not only completely eliminate the gray wolf, and probably the mountain lion, from all of the western ranges, but we will be able to reduce the other predatory animals to such an extent that the losses due to them will become comparatively insignificant."

All this saving is perfectly apparent to the stockmen, and they have not stinted money in aiding the work. States, communities, and associations of individuals have made liberal appropriations to supplement those made by the Federal Government.

Rodent Losses Striking

But the losses from rodents, great as they are, have never been so strikingly apparent. The rodent is individually insignificant, and comparatively few stockmen realize the value of the forage destroyed by the multiplied millions of them. The prairie dog alone occupies more than 100,000,000 acres of the best range land in the Rocky Mountain region, and his range is overlapped in places by the ground squirrel, gopher, and rabbit. The prairie dog destroys from 10 to 75 per cent of the grass in any territory it occupies. Charles Springer, an old stockman and now chairman of the State Council of Defense of New Mexico, estimates that the ranges of New Mexico would support 400,000 more cattle or 1,500,000 more sheep than at present if the prairie-dog pest could be removed.

The cost of destroying the rodent pests, by methods that the Biological Survey has developed, would probably not exceed 6 cents an acre for the entire territory covered. The range covered in Mr. Springer's estimate is about 6,000,000 acres. At a cost, therefore, of $360,000, the cattle-carrying capacity of the ranges of New Mexico could be increased by 400,000 head. But, in addition to their ravages on range production, the rodent pests swarm about cultivated areas and destroy enormous amounts of cultivated crops and forage plants, such as grains and alfalfa.

Asks for Cooperation

Active campaigns for the destruction of rodent pests are already proceeding on a large scale in most of the Western States and are increasing rapidly among the farming communities as a result of the cooperation between the Biological Survey and the State agricultural extension service. On the ranges, however, want of available funds and lack of interest on the part of many stockmen is accountable for a less vigorous campaign in many States. The stockmen of New Mexico and Arizona are cooperating in the elimination of rodent pests and an awakening is noticeable in some of the other States. In order to encourage this, Dr. Nelson suggested that the American National Live Stock Association and the various State associations of the West have active subcommittees to cooperate with the Biological Survey in investigations of the rodent problem and in instituting systematic campaigns for their eradication wherever they are destructive to crops or range grasses.

Live Stock Product Prices Lag Behind Prices of Feedstuffs

Higher prices of the crops eaten by live stock should find their way into higher prices for live-stock products. Eventually they may, but there is what the Bureau of Crop Estimates of the United States Department of Agriculture calls a "lag." Product prices do not fully respond at once to advance in feed prices. Such was the situation of farmers with regard to the prices of dairy products and other animal products from 1915 to 1918, and the lag was heavily felt by farmers in 1917.

From 1915 to 1916 crop prices increased 47 per cent, from 1915 to 1917 about 110 per cent, and from 1915 to 1918 about 120 per cent. During the same time the total value of animal products on the farm did not correspondingly gain, although a tendency to overtake the lag appeared in 1918.

In the meantime live stock has increased in number and price, and enormously in total value, although not enough to hold its place in the procession, and it is interesting to compare the total value of live-stock products with the total value of the live stock itself year by year during the war. In each of the three years, 1913–1915, the aggregate value of live-stock products was 65 per cent of the aggregate value of live stock. The ratio went up to 68 per cent in 1916, made a great advance to 78 per cent in 1917, and to 84 per cent in 1918. Live-stock value, compounded of increasing number and increasing price, lagged behind the advancing value of live-stock products.

That there should have been a lag in the advance of live-stock value, compared with the advance in the value of live-stock products, is in accordance with experience, but these products themselves lagged in price behind the price of the crops eaten in their production. Consequently some unprofitable production of animal products may have accompanied the lag of live-stock value behind value of products.

FORESTERS ADVISE PROVISION FOR FUEL WOOD OF FUTURE

Communities Trusting to Chance May Fare Poorly in Emergencies

Cities and Towns with Available Woodlands Urged to Set Aside Suitable Areas for Growth of Trees—Must Prevent Waste

Communities in wooded regions should not depend on the chance growth of wood for their future fuel supply, according to foresters of the United States Department of Agriculture. Already many communities, especially in the Northeast, are finding it necessary each year to go farther and farther back for their wood, or to cut smaller trees each succeeding year, because the available supply of standing wood is too small to allow the trees to grow to the proper size before they are cut.

Must Provide Woodlands

The time will come—and soon in some regions, the foresters say—when it will be necessary to set aside areas to produce wood, and to manage them for maximum wood production in the shortest possible time. It is not desirable to devote good agricultural land to this purpose; generally the inferior land on farms will grow sufficient fuel to supply regularly each year's needs. Farms with such land are numerous in the hilly sections of the country, and are found almost everywhere except in the prairie and plains regions and in limited areas in the river bottoms.

Meanwhile, the least that should be done is to see that fire and other destructive agents are kept out of growing woodland, and that in cutting for firewood only the material taken out which will not injure the productive capacity of the remaining stand. Advice on these matters will be given by the various State forestry departments or by the Forest Service of the United States Department of Agriculture.

Municipal Forests Needed

Acute need for fuel in emergencies furnishes one of the strongest arguments for cities or towns maintaining municipal forests in available wooded districts. These emergencies may be expected periodically, and municipal forests serving as parks and pleasure grounds or as protection to water supplies can come into play as fuel reserves in time of stress when coal can not be obtained in sufficient quantities. The foresters recommend the point to the thoughtful consideration of every community which has suitable adjacent woodland.

Some towns already own such tracts, and eventually many of these forests are expected to be in the older-settled sections of the country when it is found how easily they are handled and how advantageous they are in many respects. Instead of being sources of expense, well-managed woodlands should quickly become sources of considerable revenue to the communities owning them.

RULES FOR TRIMMING THE WOODLOT.

Trees well suited for fuel and whose removal will be of benefit to the remaining stand of trees in the woodlot are:

Sound, dead trees, both standing and down.

Trees diseased or seriously injured by insect attacks, or those extremely liable to such injury, such as chestnut in the region subject to blight, or birch in the gypsy-moth area; badly fire-scarred trees.

Crooked trees and large-crowned short-boled trees which will not make good lumber and which are crowding or overtopping others.

Trees which have been overtopped by others, stunting their growth.

Trees of the less valuable species crowding more valuable ones, such as beech, black oak, or birch crowding hard maple, white oak, or white pine.

Slow-growing trees crowding fast-growing species of equal value, provided they are not themselves suited for a higher use, as, for example, slow-growing white oak.

"HOG REMEDIES" FALSELY LABELED SEIZED IN INTERSTATE COMMERCE

Several shipments of preparations sold as remedies for hog cholera and other diseases of hogs have been found in interstate commerce by Federal Food and Drug Inspectors and seized upon orders of the Federal courts on the charge that these preparations were falsely and fraudulently labeled, according to a statement of the officials of the Bureau of Chemistry, United States Department of Agriculture, who are in charge of the enforcement of the Food and Drugs Act.

Seizures have been effected of the following preparations: Anti-Choleric Hog Remedy; American Hog Remedy; Snoddy Hog Cholera Remedy; Swine-Lixir; Cal-Sino Hog Restorative; National Hog Remedy; S. H. Hog Remedy; AHRA Hog Health Compound; B. A. Thomas Improved Hog Powder.

These preparations are labeled in such a manner as to convey the impression that they are effective remedies or preventives of hog cholera and other diseases of hogs. They are composed of ingredients which could not produce the effects claimed by the manufacturers, say the specialists. The only effective remedy known for hog cholera, according to the veterinary experts of the Department of Agriculture, is the treatment by inoculation with a specific serum.

Farmers are induced by the alluring claims on the labels to rely upon these ineffective preparations in the treatment of hog cholera instead of having the serum treatment applied. Thousands of hogs are lost annually because of the failure of farmers to apply the only known effective remedy for this fatal malady.

Prevents Losses from Drought; Starts Fund for Water Storage

Facing a drought that threatened big losses for the small farmers of Lyon County, Nev., the County Farm Bureau acted promptly last summer, saving grain and potatoes estimated to be worth $100,000, and starting work on a water-storage project that may prevent such emergencies in the future.

The early settlers in Lyon County were large landholders, and live-stock raising was the principal industry. These settlers held prior rights on all water flowing through the Mason and Smith valleys and used it chiefly on hay lands. Later, when lands were taken up by small landholders for farming, the only irrigation water available was the flood flow of the streams. Consequently, when the streams lowered in the summer, water was shut off from the small farmers.

During the drought in August, 1918, the small landowners, who were raising potatoes and grain, needed water bodly. The problem before the water committee of the farm bureau was to get the hay growers to relinquish their water temporarily to the potato and grain growers. In cooperation with the State engineer's office, the farm bureau placed the need before the large landholders and they assented. In return for the water the potato men signed an agreement to contribute $10 an acre for each acre of potatoes saved to a fund to be used for investigating the possibilities for water-storage reservoirs and other water-storage problems. Approximately $5,000 was raised.

The saving of the crops required the labor of two water committees of three men each on four consecutive days. The men visited from 25 to 30 farms each day, inspecting the potato and grain fields and gathering data. They contributed their own automobiles and paid their own expenses.

The "Bum Lamb" Business; How Being Good Samaritans Profits Western Boys

When the sheep came in on the western ranges the coyote took a new interest in life and found the interest fully justified by developments. Now, however, all up and down the Mountain States, he finds that interest becoming a pale and unprofitable abstraction, bearing no fruit but that of the Dead Sea variety. Something has come between the coyote and his tenderest and most delectable prey. That something is boys.

In the old days it was easy picking. Great multitudes of sheep drifted across the arid wastes, thousands upon thousands and myriads upon myriads of them, and day by day a certain percentage of the very young lambs dropped out of the ranks—the lambs that were too weak to keep the pace, the lambs that became bewildered and went down under hoof. The bands swept on and the coyote simply followed after and made the lost lambs his meat. No exertion was required—no long-drawn-out chase, no fight at the finish, hardly even a struggle. After long ages of trailing such high-geared prey as jack rabbits, it was like the dawn of the millennium to the lean coyote.

Now all is changed. The bands of sheep still go by as of old, and the coyote still follows afar off, just as of old, but where are the lambs that used to be the reward of his vigil?

They Still Drop Out, But——

The lambs have not changed. They still drop out of the flock, still lie down on the job just as regularly, just as consistently as they did five years ago, or ten years ago, or in the time of Abraham. The difference is that whereas yesterday the coyote was the sole purveyor of first aid, to-day he is forestalled by a small boy who pounces upon the wabbly derelict, stuffs him into a gunny sack, and carries him off home.

The "bum lamb" clubs are of but few years' standing, but since the earliest of them were organized in the State of Washington in 1914 they have been the means of saving many thousands of lambs from becoming the prey of wolves. The movement has spread to Oregon, Idaho, Montana, and Utah, and has become one of the most fruitful branches of the boys' and girls' club work conducted by the United States Department of Agriculture and the State agricultural colleges.

The club boys systematically follow the droves of sheep that pass to and fro on the ranges near their homes, and take possession of the lambs that the sheepmen abandon. "Finders are keepers"—and now many a farm in the irrigated valleys of the West can boast a thrifty flock of sheep, all salvaged from the lambs that used to be the coyote's share of the sheep business.

What Jimmy Jones Did

The experience of almost any member of these clubs may be taken as representative of the way they go about the business of saving "bum lambs," that of Jimmy Jones, for example. Jimmy lives in one of those valleys in Washington where the big apples come from and his father owns a little orchard there. Beyond the escarpment that bounds the valley proper lies the open range, where the bands of sheep come and go in season.

Jimmy became interested in the "bum lamb" work and began to follow the sheep bands. Day after day, during the lambing season, he went out into the range and hunted for lost lambs. Some days he covered miles of sage without finding a single lamb; some days with the help of the herders he was lucky enough to find three or four. By the end of the season he had saved 43.

All these lambs had to be bottle-fed. When Jimmy was in school his mother cared for them and saw that they had the frequent feeding so essential to the welfare of young lambs. When the home milk supply became inadequate Jimmy bought milk for his flock. As soon as the lambs were big enough to nibble herbage he began staking them out along the irrigation ditches, where they throve on rank weeds that otherwise would needs have been moved to keep them from choking the ditches.

Thus Jimmy became the possessor of a fine bunch of sheep. As soon as his wethers began to be ready for market he began selling to a buyer in a near-by town. Then, seeing a wether that he had sold for $7 hauled back before his own door to be sold to a road construction camp, dressed, for $10, he promptly went into the dressed-meat business. After that it was Jimmy Jones, not the man from town, who sold mutton to the construction camp. He has been making a net profit of about $10 a head on his wethers. Furthermore the home orchard has been stocked with a profitable bunch of ewes.

Fathers Learn Something

This case is typical. The "bum lambs" rescued from the range by boys have not only proved money-makers for the boys but have served to give the fathers of those boys a salutary lesson in the value of diversification in general and of sheep in particular.

In some parts of Wyoming the sheep clubs elect representatives, two boys per club, to gather orphan lambs for them. These boys take their blankets, go out to the sheep camps in the lambing season and stick around night and day till they have collected lambs enough to fill the orders of all the members of their clubs. In some instances boys from the clubs have taken the places of sheep herders, especially during the war, each boy doing a man's work and in addition looking after the "bum lambs."

Country school-teachers have done much toward encouraging boys and girls to take up sheep-club work. One school-teacher in the State of Washington has the distinction of having organized a club and obtained the necessary lambs to start it on an hour's notice. This girl, Miss Mae Marks, taught a country school in Yakima Valley. A sheepman who had heard that she was interested in club work visited her school with 21 "bum" lambs in a wagon, and offered them to her at a dollar a head. She dismissed school for one hour and sent her scholars home to ask father about it. At the end of the hour the 21 lambs were taken and that community had a sheep club in full blast.

How many lambs have been saved in this way in the years since the first "bum lamb" clubs were organized it is impossible to say, but the total will certainly run into tens of thousands. In Utah alone, according to reliable estimates, 5,000 lambs were saved by club boys last year.

Sheepmen See a Lesson

This work is having a secondary effect not contemplated by its founders, perhaps, and perhaps not altogether pleasing to the boys who have found a source of easy profit in the wasteful carelessness of the sheepmen. For the latter have taken cognizance of the fact that boys are picking up money in the wake of their sheep and are beginning to think that it may be worth while to save that money themselves—which, of course, is the thing that they ought to have thought of in the first place. And so, whereas they used to think it too much trouble to bother with straggling lambs they are now finding that playing the good shepherd is not merely the decent thing but also a very profitable thing.

But this butters no parsnips for the coyote. From a practical standpoint it makes no difference to the coyote whether the lambs are picked up by a boy

and carried off in a gunny sack or are taken care of by the men whose business it is to look after them. The thing that concerns the coyote is that it is done; that the tender leg of lamb that used to be his for the taking is now disappearing from the sage-tufted face of the earth.

And in the long run it makes little difference to the human race who saves the lambs. The important thing is that they are indeed saved, and that the leg of lamb that used to feed the wolves now grows into mutton to feed people and wool to clothe them—people, from the purely human standpoint, being of vastly greater importance in the scheme of things than coyotes.

DUAL-PURPOSE HEN A GOOD ONE; CAPABLE BOTH IN RING AND YARD

A hen, in order to be classed as a genuinely good one, should be equally capable of going in the show ring and taking a ribbon or of going on the yard and making a record as a layer. And the breeder, in order to get the advantage of the best and broadest markets, must breed for a combination of utility and standard quality instead of following the tendency to become either a fancier or a utility breeder. That is the advice of Rob B. Slocum, a poultry specialist of the United States Department of Agriculture, and it is based largely on results obtained on the poultry farm of the department at Beltsville, Md., where many of the exhibition males used have 200-egg production in their pedigrees.

"Except in a few more or less isolated cases," says Mr. Slocum, "there is nothing in the standard requirements directly opposed to utility, and the buyers during the past few years have shown an increasingly insistent demand for fowls that have egg-producing ability back of them."

Fanciers, Mr. Slocum points out, are too prone to put the appearance of the fowl above everything else, and thus to neglect the egg-laying quality, while, on the other hand, unsuccessful fanciers are likely to turn completely to the egg-producing side of breeding without any attention to "points." Either of these attitudes, he says, is an obstruction to the best development of poultry raising in the United States.

"The Department of Agriculture," he continues, "encourages poultry breeders to develop flocks along breeding lines to secure a combination of good production, vigor, and uniform standard type. That goal is readily attainable through careful selection of breeding stock, and those who follow the policy suggested may confidently expect the most attractive markets."

GROUND SQUIRRELS NO LONGER HOLD IDAHO FARM MORTGAGES

Poisoning Campaigns Clear Territory, Save More Than a Million

Powdered Strychnine Proves Effective in Destroying Rodents; Work Should Be Done in Early Spring

By combating ground squirrels Idaho farmers saved over $1,250,000 in crops during 1918. Twenty-two counties and 4,025 farmers cooperated with the Biological Survey of the United States Department of Agriculture in stamping out the squirrel pest, and as a result 277,751 acres were cleared of the rodents.

It is estimated that this ground-squirrel-eradication work in Idaho saved at least 5 per cent of the total crops of that State, which formerly went to pay the yearly rodent tribute. As one farmer phrased it, "I used to consider that the squirrels had a mortgage on 25 per cent of my crops, as they devoured one-fourth of all I produced. Now after I have cleared my farm of squirrels, I harvest and save 100 per cent of all the crops I grow."

In Bonneville County 114 farmers distributed 6,223 pounds of poisoned oats over 11,871 acres, and as a direct and immediate result saved $41,265 worth of farm crops which otherwise would have been consumed by the squirrels. In the eradication campaign one farmer in that county distributed poisoned bait over one of his fields and less than one hour later when he returned to the field he counted 278 dead ground squirrels, 6 rabbits, and 10 "rock chucks" which had fallen prey to the deadly bait.

Use Rapid Poison

Idaho farmers formerly used strychnine sulphate prepared in a variety of ways to poison ground squirrels, but because this material proved unsatisfactory the use of powdered strychnine (alkaloid) is now practiced in the organized campaigns. The poison acts very rapidly through the mouth and cheek pouches instead of through the stomach. It is prepared by mixing 1 tablespoonful of gloss starch in one-half teacup of cold water and then stirring the combination into one-half pint of boiling water to make a thin, clear paste. Then 1 ounce of powdered strychnine (alkaloid) is mixed with 1 ounce of baking soda in a little water and stirred with the starch into a smooth, creamy mass, free of lumps. Then one-fourth pint of heavy corn sirup, 1 tablespoonful of glycerin, and 1 scant teaspoonful of saccharin dissolved in a little warm water are stirred together. This solution is spread over 12 quarts of oats and mixed thoroughly in order to coat each kernel. One quart of this poison is sufficient for 40 to 60 baits. The material—scattered 1 teaspoonful to a place—should be distributed along the clean, hard surfaces near the squirrel holes where it will not endanger live stock and where there is no chance for the rodents to waste the material by tramping over it or by covering it with refuse from their holes, as would occur were the bait to be placed directly in their burrows.

The saccharin and corn sirup are used to make the bait palatable, while the baking soda retards solution of the strychnine and thus aids the saccharin in hiding its bitter taste. The starch cements the poison evenly over the oat or barley grains and the glycerin prevents the poison from drying and dusting off the grain. Oats or barley are used because the ground squirrels for which the bait is intended are particularly fond of these grains. This bait is much better than the strychnine-sulphate poison formerly used, because it is more effective and can be stored in quantity for comparatively long periods without deterioration.

Special Treatment Required

Columbian ground squirrels are not controlled by this method of eradication, as they hull oats very carefully before eating them and hence avoid the poison. Therefore a special method of preparing bait for these squirrels is used so that as they hull the oats the poison flakes off in the rodents' mouths and kills them. The Columbian ground squirrel infests the wooded sections of Idaho north of Boise and Bellevue; it has longer ears and tail and is of larger size than the ordinary ground squirrel. It also has an obscure brown-colored streak along the middle of its back, while the hind portions of its hips and thighs are a bright, brownish-red color.

The Columbian squirrel bait is prepared by combing in dry mixture 1 ounce of powdered strychnine (alkaloid) and 1 ounce of baking soda, 1 teaspoonful of saccharin, and 3 tablespoonfuls of flour, adding a little cold water and stirring thoroughly to a smooth, creamy paste. This mixture is distributed uniformly over 12 quarts of oats as in the former case, and the poison bait scattered as previously described. This poison should be used within 10 to 14 days after preparation, as otherwise the material will dust off the grain. If the poison wastes too freely, the grain may be placed in a tub or other vessel, sprin-

kled with a little water, and mixed to moisten it before distribution.

Poison ground squirrels as early in the spring as possible, say the Federal specialists, as in this way the natural increase of young squirrels is eliminated. The poisoning campaign should be continued throughout the year until the section is free of these pests. The rodents will eat the poison baits at any time. Attention should be given to destroying the squirrels in all their haunts in pastures, uncultivated fields, fence rows, and roads, as well as from the cultivated fields where complete extermination of the pests is sought.

Bulletin Tells What to Do When the Gas Engine Balks

A gas engine on the farm is a great labor saver or a great time waster, depending upon the skill of the operator. An unskilled man may spend more time and energy in trying to start an engine to pump water or do some other task than would be required to do the work by hand. Often crews of workmen hired to help thrash, bale hay, cut ensilage, etc., draw full wages for hours spent in idleness, owing to inefficient handling of the engine. Such delays are preventable, for engine trouble is usually due to the operator's ignorance of some of the details essential to proficient operation. Knowledge of the engine, then, is one way to conserve farm labor and avoid trouble.

To supply such knowledge the United States Department of Agriculture has recently published Farmers' Bulletin 1013, "Practical Hints on Running a Gas Engine." The aim of the bulletin is to call attention to some of the common causes of engine trouble, to suggest a method of finding quickly the seat of the trouble when an engine fails to run as it should, and to offer a sort of reminder in the form of a condensed trouble chart, which may frequently be of assistance even to experienced engine operators.

Stop, think—then follow a definite system to find the trouble, advises the bulletin. It gives directions for testing the ignition system, fuel system, and compression, also points on starting and operation, and gives suggestions which will aid in starting the engine in cold weather. Particular emphasis is laid on the importance of a thorough knowledge of the gas engine. A copy may be obtained, so long as the supply lasts, by applying to the United States Department of Agriculture, Washington, D. C.

SIRUP FROM SWEET POTATOES, NEW USE FOR SURPLUS TUBERS

Bureau of Chemistry Tells Results of Successful Experiments

Method Recommended Particularly for Home Use of Oversupply; Yield of 30 to 35 Per Cent of Weight Shown

Experiments conducted in the Bureau of Chemistry have produced a palatable and wholesome sirup from sweet potatoes, the United States Department of Agriculture announces. The method, developed by a specialist in the bureau, is recommended particularly for home use where there is an oversupply of sweet potatoes. The method is not recommended at present for commercial use, because it is believed that sweet-potato sirup can not compete on a commercial basis with grain sirups.

The sweet-potato sirup, which shows a yield of from 30 to 35 per cent of the weight of the sweet potatoes, has consistence, taste, and color similar to cane and sorghum sirups. It is known to contain much sugar. Experiments to determine its exact food value are being conducted by the Home Economics Office of the department.

The Method in Brief

The sweet potatoes should be washed, any decayed portions or other blemishes removed, and then weighed. They are then placed in a kettle with plenty of water and boiled until thoroughly soft. From 1½ to 2 hours' boiling is required. The potatoes are then mashed in the kettle in the water in which boiled, with sufficient water, adding more if necessary to form a thick, smooth, mushy liquid. The temperature of the mixture is then brought to 140° F., and a quantity of ground malt added equal to 3½ per cent of the weight of the original sweet potatoes. The mixture is thoroughly stirred and allowed to stand for a few minutes at a temperature of 140° F., and the temperature is then brought with constant stirring to a temperature of 150° F., the source of heat removed, and the mass allowed to stand with occasional stirring for an hour. The mixture, known technically as the "mash," is now pressed in cloths to separate the liquid and solid portions. The material is placed in cloth bags, which are closed, and the bags subjected to gentle pressure while kneeding. The juice flows out readily, leaving the pulp behind. The juice is now boiled down to sirup in an ordinary kettle.

Any of the common varieties of sweet potatoes can be used. Freshly harvested stock will yield a sirup somewhat less sweet than sweet potatoes which have been harvested for some time.

The sweet potatoes should be cooked with plenty of water. It is necessary to obtain a fluid, mushy mass which can be mixed readily with the malt.

Great care must be taken that the temperature of the mass be uniform throughout during the action of the malt.

Preparation of Malt

Ordinary brewer's or distiller's malt of good quality gives excellent results, or the malt can be made by sprouting barley under proper conditions. In preparing malt from barley the following method will give satisfactory results: The grain should be soaked in water for 12 hours. The water is then drained off and the grain allowed to stand for 12 hours, and the operation of soaking and standing repeated during the next 24 hours. At the conclusion of the steeping, the interior of the grain should be soft and chalklike. The grain is then spread upon a tray in a layer not over 6 or 8 inches deep. The temperature at which the sprouting grain is kept is of great importance in the successful manufacture of malt. It should be kept as near 60° F. as possible. After the grain has grown for six or eight days the sprout forces its way out at the end of the grain opposite to the rootlet, and the malt may be used with excellent results at this time. Sprouting, however, may be allowed to continue slowly for another six or eight days, or even longer, until the sprout has attained a length from three to four times that of the grain. The grain must be kept moist, so that the rootlets do not wither during the sprouting period and should be turned over and thoroughly mixed at least once a day and kept covered with a wet cloth and in the dark. The product is known as "green malt." It should have a fresh odor and be free from any sour smell, and should be free from mold. Immediately before use the green malt should be finely ground in an ordinary meat chopper or other suitable machine. When so ground it forms a pasty mass and may be added directly to the boiled mashed sweet potatoes and the mixture thoroughly broken up by stirring until the malt is thoroughly disseminated.

Separating the Liquor

On a small scale this is most readily accomplished as described. On a large scale an ordinary cider press, using racks and cloths, can be successfully employed. The liquor obtained is slightly sweet and rather turbid. Plenty of water should be used in order to produce a mash from which the liquor will freely flow and in which a large proportion of the sugars may be easily removed by a single press-

ing. The total quantity of water used should be two or three times the weight of the potatoes. The sweet-potato sirup can be boiled down to as thick a consistence as desired. The pulp which remains can be dried and used for feed, or it can be fed while fresh.

PROPOSES BARBERRY QUARANTINE TO STOP INTERSTATE MOVEMENT

As a means toward eliminating black stem rust of wheat and other grains, the Secretary of Agriculture purposes establishing a quarantine to prohibit interstate movement of the common barberry, as well as other species of Berberis and Mahonia. A public hearing will be held at the rooms of the Federal Horticultural Board, Washington, D. C., at 10 o'clock February 24, in order that any person interested in the proposed quarantine may be heard, either in person or by attorney.

Investigations made by the Department of Agriculture have shown that the common barberry and related plants are capable of harboring the black stem rust of wheat, oats, barley, rye, and many wild and cultivated grasses throughout much of the grain-growing area of the country and especially in the States of Nebraska, Iowa, Illinois, Indiana, Ohio, North Dakota, South Dakota, Minnesota, Kansas, Montana, Wisconsin, Michigan, Wyoming, Missouri, and Colorado. The prevalence of the common barberry throughout this area has been responsible to a considerable degree for the severity of the epidemics of black stem rust that have frequently caused enormous losses of wheat and other cereals.

Through the cooperation of the Department of Agriculture with State officials, local organizations, and individuals, the susceptible species of Berberis and Mahonia have been very largely eradicated from the States named, but these plants are still prevalent in many of the regions of the United States. It appears necessary, therefore, to quarantine the States of Alabama, Arizona, Arkansas, California, Connecticut, Delaware, Florida, Georgia, Idaho, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Mississippi, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, and the District of Columbia, in accordance with provisions of the Plant Quarantine Act, and to prohibit or regulate the movement from these States and District to the States first named of all species and varieties of barberry and Mahonia susceptible to black stem rust.

Sweet Clover and Blue Grass Make a Good Team in Pasture

Perhaps there is no use for sweet clover that gives such promise and that seems of such wide application as its combination with blue grass for pasture, according to Farmers' Bulletin 1005, recently issued by the United States Department of Agriculture. Both crops grow together well, even when there is a perfect stand of each. The sweet clover adds nitrogen to the soil, and where the stand of blue grass is poor this helps it to thicken and produce a much better stand than would be possible without sweet clover.

Furthermore, the clover adds greatly to the total amount of pasturage produced and gives a longer pasture season. It comes on in the spring two or three weeks earlier than most other grasses and the live stock can be turned out to pasture just that much earlier. In some instances this combination has more than doubled the carrying capacity of an acre of blue grass alone. A first-class pasture of this kind will easily carry two 1,000-pound steers on an acre in the spring and early summer, and as a usual thing, will carry more than one such steer during the remainder of the pasture season.

May Harvest Seed

If not pastured too heavily the sweet clover will produce seed enough to reseed the pasture, and often a crop of from 3 to 8 bushels of seed an acre can be harvested, in addition to the pasturage produced throughout the season. The experience of a few men is that when such a combination pasture is handled in this way it will maintain itself from year to year, and it is unnecessary to sow any great amount of seed to keep up the sweet clover in combination with blue grass.

In establishing a combination sweet clover and blue-grass pasture the problem of getting a stand, as compared with the growth of sweet clover in rotation, is fundamentally different. In some instances the pasture must be plowed, limed, and seeded anew. On old blue-grass pastures of long standing, which still have a fairly good lime supply, a stand of sweet clover often can be secured simply by sowing the seed late in March or early in April and allowing live stock to trample the seed into the ground. In other instances it is more convenient to start such a pasture on a part of a rotation area, a seeding of sweet clover and timothy being made in oats after the necessary application of lime, the blue grass being allowed to come in of its own accord.

Experiments Often Necessary

To determine the method that will succeed in getting a stand of sweet clover and blue grass for pasture, it will generally require some experimenting, as local conditions vary greatly. In some instances it has been found successful to sow sweet clover with timothy, the blue grass being allowed to come in, so that in a few years there is a perfect stand of sweet clover and blue grass. Pastures of this kind will make luxuriant growth annually, and if care is exercised to permit a part of the sweet clover to produce seed each year, no other attention is necessary.

Running a Portable Sawmill Calls for Knowledge of the Business

"Running a portable sawmill is no longer an easy occupation," writes Forest Service Logging Engineer D. F. Seerey, in Bulletin 718, just published by the United States Department of Agriculture. The timber which was easy and cheap to log and which made it possible to run a portable mill with small capital and small skill has largely been cut or burned, so that nowadays the portable mill operator needs good business ability, skill, and hardihood, and a sufficient amount of capital to meet his obligations promptly and to provide good modern equipment.

To the operator who has sufficient capital for his enterprise the thing most needful is a thorough knowledge of all the details of organization and operation. A guide to such knowledge is provided in this publication. It is written by a practical lumberman and is intended primarily for the benefit of portable sawmill operators in the West, where many inexperienced men engage in the business. Definite, detailed information is given concerning the construction and equipment of the mill, the logging equipment, and the operations in the woods and the mill.

The county agent in Hamilton County, Ohio, suggested that it would be a good idea for someone in each community to own a stone crusher and do an occasional custom job. Now the sterile outcroppings of limestone that have bothered farmers of that locality so long are being converted into crushed limestone, and applied where they will do the most good.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big War Jobs That Are Helping American Farmers to Feed Nations

Hunting Wild Fowl in Planes Forbidden.

The director of military aeronautics has forbidden the shooting of wild fowl with machine guns from airplanes and has directed that airplane flights along the Atlantic coast or at any place where migratory wild fowl may be found shall be conducted in such a manner as to interfere as little as possible with the habits and feeding of the wild fowl. Commanding officers are instructed to use every means to carry out the regulations and to bring to trial any offenders that may be guilty of breaking any of them. Complaints of the shooting of wild fowl with machine guns from airplanes were received some time ago by the Department of Agriculture from several places along the Atlantic coast. The attention of the War Department was called to the fact that such shooting was in violation of the Federal migratory bird law enacted last year to give effect to the treaty between the United States and Great Britain.

Gardens Will Be Profitable This Year.

The home garden is likely to prove a profitable investment of effort this year as it has for the past several seasons, in the opinion of the United States Department of Agriculture. The experience of the past few years has proved that persons who have sufficient land and spare time and who do their home gardening work intelligently and efficiently find it profitable. The relatively high prices of practically all foodstuffs tend to increase the saving effected, but the home garden should be planned with a view to meeting the family needs rather than of producing crops for sale on the market.

Growing Avocados in United States.

Twenty-three varieties of avocados have been introduced into the United States from Guatemala and are now being grown by the United States Department of Agriculture in California and Florida. Some of these give promise of successful cultivation in this country. To assist prospective avocado growers in the United States in growing this delicious fruit, sometimes erroneously called "alligator pear," the United States Department of Agriculture has recently published Bulletin 743, "The Avocado in Guatemala." In the South American Republic every dooryard has a few avocado trees which furnish shade and fruit, and it has a more important place in the diet of the natives than the banana. The Cargadores or common carriers of Guatemala make their midday meal of an avocado and a tortilla or cake made of corn meal. As much as 20 to 30 per cent of the flesh of avocado is oil.

Better Crops Pave Way for Stock.

To establish "safe farming" in Pointe Coupee Parish, La., the local agricultural agent has worked out a systematic plan to improve crop yields and introduce more and better stock. Proper field selection of seed corn and the best methods of cultivation were given first attention. In the fall of 1917 the first concrete evidence was had of the success of this work when more than 100 carloads of corn were shipped from the parish. In 1918 a seed-demonstration plot was grown and corn produced on the area won first place at the Southern Louisiana Fair. Through the agent's efforts nearly every farmer now has an alfalfa patch producing at the rate of nearly 5 tons an acre. During the past year the alfalfa acreage was increased more than 100 per cent. Under the agent's direction hundreds of pure-bred and high-grade sires and dams have been imported, and native scrub cattle have given way to animals of quality. Hogs and sheep have also been greatly improved, and now practically every farm family produces enough meat for its own use and many have a surplus for sale.

Florida County to Fight Ticks.

Ten more dipping vats are to be constructed this spring in Washington County, Fla., where tick eradication work is progressing rapidly under the supervision of local county agents and Federal extension men. Six counties have thus far been released from tick quarantine in Florida.

Oklahoma County Out for Rabbits.

Beaver County, Okla., started a seven days' drive on jack rabbits January 27. Fifty prizes, ranging from $1 to $50, were to be awarded to the stockmen accounting for the largest numbers of scalps. The county agent reports that the jack rabbits annually damage the local crops of wheat, grain, sorghum, Mexican beans, cantaloupes, and the like, to the amount of $50,000 to $75.000. Hunts and drives are held each winter, and although thousands of the rabbits are killed, new hordes soon appear. A Hutchinson (Kans.) concern is dressing and shipping large numbers of jack rabbits to eastern cities where there is a good demand for them. The county pays a bounty of 3 cents a scalp in order to promote the extermination of the pests.

More Dairy Cows Go to Florida.

If dairy cows published a newspaper a large part of the society column would be taken up at this time with notices of members of noted dairy families leaving their homes in the North to spend the winter in the sunny South. The fact is that thousands of dairy cattle are being shipped into Southern States this winter, and it is probable that they will like their new homes so well that they will not return. A campaign is being conducted in Florida with the object of placing at least one dairy cow on every farm in the State, and if possible two or three. The Orange County agent has preached this policy to his county for the past few months, and as a result, in one week recently three carloads of pure-bred Holstein and Jersey cattle were brought into the locality from the North. One car, however, was made up of South Carolina stock.

Hay Should Be Increased 25 Per Cent.

A 25 per cent increase in the production of hay, in order to maintain and if possible to increase the supply of live stock, is recommended by the United States Department of Agriculture. The production of hay in the United States in 1918 was only 90,000,000 tons, as compared with 98,000,000 in 1917, and 111,000,000 in 1916. This falling off was due to unfavorable seasons and to plowing up meadow lands for other crops.

Europe Likes American Milk.

European people have learned to like American dairy products. Exports of condensed milk to Europe rose from 16,000,000 pounds in 1914 to 530,000,000 pounds in 1918, and there were notable increases in exports of other dairy products. Much of this may be due to

abnormal war demands, but the United States Department of Agriculture believes that there is both an opportunity and a tendency to expand in this direction over prewar requirements. A normal increase in dairying in this country, the department thinks, is fully justified, provided there is the necessary increase in feed crops.

Sugar Ample But Abnormally Distributed.

The prospective production of sugar for the season of 1918–19 is about 188,000 short tons less than the annual average for the five years just before the war which, as compared with a total of 18,750,000 short tons, is not of great significance, and the current crop is regarded by the United States Department of Agriculture as practically sufficient to meet a normal world consumption even if present stocks did not exist. Attention is called to the fact, however, that the world sugar supply is not normally distributed. There is a shortage in the beet-sugar production in Europe of 50 per cent of the prewar average, amounting to about 4,150,000 tons, while in the same time the cane sugar output has increased by 3,842,000 tons, and the beet sugar crop of the United States is 131,000 tons above the prewar average, though the smallest since 1914. No considerable increase in beet sugar production is expected within the next 12 months, though it is expected ultimately to exceed that of prewar times.

"Kaiser" Pea Changes Its Name.

Farmers who want to buy quantities of the variety of field pea introduced several years ago by the United States Department of Agriculture from Germany, and then known as the "Kaiser" pea, will save trouble by not using that name any more. These peas are now known as "McAdoos," and they are as widely distributed through the Northwest as Liberty bonds, which caused the substitution in nomenclature.

Will Combat Potato Blight in Maine.

The finding of late blight in potato shipments from Maine by market inspectors of the United States Department of Agriculture will result in a special effort by extension forces to combat this disease in the potato growing districts of Maine this year by careful seed selection and thorough spraying. In some cases the infection on the tubers is only slight, the average being from 5 to 15 per cent, but in one car inspected the loss amounted to 30 per cent. One of the Federal inspectors who recently visited the Monmouth County (N. J.) Farm Exchange found Maine seed potatoes stored there considerably infected with late blight. Extension specialists are recommending that seed stock be very carefully sorted to discard diseased tubers, and every precaution exercised to prevent the spread of the disease by planting sound seed next spring.

Many Farmers Apply for Seed Loans.

A large number of Montana and North Dakota farmers have made applications for seed grain loans from the fund provided by the President to aid farmers in drouth-stricken areas. The Great Falls, Mont., office of the Seed Grain Loan of the United States Department of Agriculture reports, up to January 18, applications from 1,585 Montana farmers in amounts totaling $590,720 and from 182 North Dakota farmers in amounts totaling $74,867. The Montana applicants represent an acreage of 118,144 and the North Dakota applicants an acreage of 14,974.

Pure-Bred Sires Prove Their Worth.

Wisconsin dairymen and farmers, desirous of increasing their profits and adding still greater honors to their already famous dairy State, have joined in a State-wide campaign to eliminate the scrub bull and use only pure-bred sires. The record made last year in the Brown County Cow-Testing Association typifies the merits of pure-bred bulls and illustrates why farmers and dairymen will not tolerate the scrub. In this association 12 cows qualified for the register of production. All of these cows were daughters of pure-bred sires, six of them being daughters of one sire. The five best herds in the association are headed by pure-bred sires, while the five poorest herds are all headed by grade or scrub sires. The herds of those farmers who used pure-bred sires averaged 85 pounds more fat a cow than those using grades or scrubs. Last year eight of the members purchased pure-bred sires of known breeding to replace their scrubs.

Farm Bureaus Have Reading Circles.

Recent reports from the West Virginia extension service indicate that any prejudice against "book farming" which exists is fast losing ground in that State where last year 80 farmers' clubs with a membership of more than 1,600 farmers devoted the winter months to a definite study of some of their more difficult farm problems at reading circles held regularly throughout the season. These winter reading circles are becoming more popular in the State and fully 100 clubs with a membership of at least 2,500 farmers are pursuing some one of the several reading courses offered by the State extension department this year. The county agents are very active in this work, organizing farm bureaus and local community clubs and stimulating greater interest in the reading circles in their localities. Subjects such as soil fertility, farm crops, animal husbandry, horticulture, and farm management are being studied.

WAYS OF GRAZING CUT ASPEN LANDS DISCUSSED IN DEPARTMENT BULLETIN

The best way to utilize the forage crop of western aspen lands on which aspen reproduction is desired is by moderate grazing of cattle after clear cutting or heavy thinnings of the timber.

This is the conclusion of a study of the effect of grazing upon aspen reproduction made by the Forest Service. The results of this study are embodied in Bulletin 741 of the United States Department of Agriculture, which has just been published. While the management of aspen lands of the type described is chiefly a national forest problem, the conclusions are applicable also to privately owned aspen lands in the western national forest regions.

The leafage, young twigs, and branches of aspen reproduction are browsed with varying degrees of relish by both cattle and sheep. After the third year, however, the sprouts are high enough not to be injured seriously by sheep, and when from four to five years old are practically safe from damage by cattle browsing. To exclude all grazing from cut-over aspen lands would mean a needless loss of the forage crop which grows along with the aspen reproduction. On the other hand, sheep browse on the aspen to such an extent that anything more than the very lightest of sheep grazing over the choicest of forage would be fatal to a full restocking of the land with aspen.

Hence it is recommended that when aspen is cut and reproduction is desired, on sheep range or combined sheep and cattle range, only cattle be grazed, and that moderately, for at least three years. Such a temporary change in the class of stock grazing the lands has the further advantage of increasing and improving the forage. The cattle will graze most closely the kinds of forage plants which the sheep have grazed lightly, and thus give those weakened by close grazing a chance to recuperate.

On cattle range no change in grazing is required, but proper distribution of the stock should be secured by the right location of salting and watering places, and in some circumstances by drift or division fences. Care is always necessary to see that the range is not too heavily stocked.

DEPARTMENT'S PLAN REPELS RAT ARMY FROM U. S. STORES

Barrelful a Day Was Initial Catch in Bush Terminals, New York

Rodents Dwindled as Campaign Was Followed; Information on Similar Efforts Available to Private Persons

A barrel of rats is not a pleasant thing to contemplate, but it is what Maj. O. D. Hammond, Quartermaster Corps, United States Army, used to have to look upon every day in the great Bush terminals, Brooklyn, used by the War Department for storing clothing and subsistence for the overseas forces. At first he saw them scampering around over everything, gibbering and crawling and cutting. Then he saw them, day after day, heaped up in barrels. Then, finally, he saw them dwindle until only about a dozen a day could be found in the whole warehousing plant, 11 blocks long and from 1 to 3 blocks deep. That was after he had carried out a trapping campaign according to plans furnished by the United States Department of Agriculture.

Army Supplies Threatened

The War Department took charge of the Bush terminals January 1, 1918. Some of the buildings, it was found, were from 25 to 30 years old. Every time a door was opened into a warehouse the scurrying of rats and mice could be heard and signs of them were apparent everywhere. It was evident that unless something could be done to get rid of them serious damage would result to subsistence supplies, such as flour, meal, corn, rice, oats, bacon, and even clothing.

The officer in charge applied to the United States Department of Agriculture for assistance, with the result that an expert from the Bureau of Biological Survey was detailed. After making an investigation he recommended that six or eight gross of modern rat traps be purchased and that four men be put to work trapping the rats.

50,000 Caught in Year

Maj. Hammond, in a recent letter to the Department of Agriculture, says that the plan was immediately put into operation and was followed throughout the year. At first the day's catch would net a barrel full of rats and mice. At the end of the year, only an occasional rat or mouse could be caught, amounting to not more than a dozen a day in the entire plant. Maj. Hammond estimates that probably 50,000 rats were taken during the year and that the total loss to stores, after the trapping campaign was begun, did not exceed $50.

The Bureau of Biological Survey of the Department of Agriculture has devoted a great deal of effort to devising ways of trapping and other means of destroying rodents in warehouses and the knowledge thus gathered, with particular advice in individual cases, is available for the protection of stored products.

1918 CROP PRICES HIGHEST

Composite Figure Shows 224 of 100 Average; Production Big, Too

Slightly below average in production of all crops per acre, nevertheless the year 1918 was high in crop production in the mass. Beginning with 1910, the Bureau of Crop Estimates, United States Department of Agriculture, has computed crop index numbers for each year, 100 being the average, and interesting comparisons are easily made. Of the nine years, 1915 was the most productive one in yield per acre, with an index number of 110; the year 1912 was next below with 109, 1914 and 1917 each had 104. On the other hand, the notably poor year 1911 stood at 92, 1913 was at 95, 1916 at 96, and 1918 at 99.

In mass of crop production, however, 1918 is represented by the index number 107, on account of high acreage; the high index number 116 represents 1915, 110 represents 1912, and 108 represents 1917. The year 1916, low in yield per acre, had a mass production represented by the average 100. No year since 1913 has been below average in mass production.

Before the war, low crop-production years usually had index numbers for crop prices above the average, and high-production years had ones below. Every year of the war has sent the rocket of prices higher and higher. In 1914, the first year of the war, the index of crop prices was 98, which was below average on account of cotton and paralysis of shipping and credit. In 1915 it had risen to 102, after which year the movement jumped to 155 in 1916, to 213 in 1917, and to 224 in 1918. As far as is known, this is the highest point ever reached or indicated by a composite crop price.

DEPARTMENT SENDS LIVE-STOCK MEN TO SURVEY DEMAND FROM EUROPE

The United States Department of Agriculture has named three of its live-stock experts to visit Europe for an indefinite period, and supply American live-stock industries with official information on the present and probable future demand from European countries for American animals and live-stock products.

The agricultural commission recently sent to Europe by the Secretary of Agriculture reported on live-stock conditions prior to the armistice, since which the changing situation requires further attention. The suggestion that the department send representatives to keep in touch with the European situation and furnish it with information for the producers has been made from various sources.

The department representatives are not to accept orders for animals or animal products, but the information they obtain is to be made public promptly by the department. Live stock and dairy associations in this country have been invited to suggest questions they desire investigated.

The department representatives are C. W. Larson, assistant chief of the Dairy Division, Bureau of Animal Industry, who now is in Europe doing special work; G. Arthur Bell, of the Animal Husbandry Division, Bureau of Animal Industry; and T. R. H. Wright, of the Live-Stock Section, Bureau of Markets.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended February 1, 1919:

Agricultural Production for 1919, with special reference to Crops and Live Stock. Office of the Secretary. Circular No. 125.

Relation of Dehydration to Agriculture. Office of the Secretary. Circular No. 126.

Chopped Soapweed as Emergency Feed for Cattle on Southwestern Ranges. Department Bulletin 745.

The Economical Use of Fuel in Milk Plants and Creameries. Department Bulletin No. 747.

Farm Practice in Growing Sugar Beets in Michigan and Ohio. Department Bulletin No. 748.

Pulpwood Consumption and Wood-Pulp Production in 1917. (Professional paper.) Department Bulletin 758.

Canada Thistle and Methods of Eradication. Farmers' Bulletin 1002.

The Sweet-Potato Weevil and Its Control. Farmers' Bulletin 1020.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

HAY BOUGHT IN CARLOAD LOTS.

The farm bureau of Flathead County, Mont., saved the farmers $4,998 by ordering 51 carloads—714 tons—of hay from Montana, North Dakota, and Idaho. The hay cost the farmers $27.50 a ton, f. o. b. local shipping points.

Farmer's Gamble With Nature Becomes Dependable in Long-Time Averages

A single farmer in a single year is in a gamble with nature; all farmers in a long period of time can depend on a certain average of experience. This aspect of the farmer's efforts to produce a crop is a subject of investigation by the Bureau of Crop Estimates. Observations with regard to yield per acre cover 52 years for eight prominent crops, and shorter periods for five more crops of importance. To show how susceptible to jolts this yield is, percentages of increase or decrease from year to year have been computed.

Sweet Potatoes Most Stable

The most stable crop of the 13 is sweet potatoes, for which the greatest change in yield per acre from one year to the next in the whole period under examination is 15 per cent, as an average for all States. Above this crop are rye with 22 per cent as the maximum, hay 29 per cent, rice 30 per cent, winter wheat 34 per cent (including acreage abandoned on account of winter damage), barley 41 per cent, buckwheat 42 per cent, cotton 47 per cent, flaxseed 52 per cent, oats 53 per cent, corn 61 per cent, potatoes 65 per cent, and spring wheat 83 per cent.

On turning from the greatest variations from uniformity in yield per acre in a single year to the average change of all years, it appears that the average for sweet potatoes is 5 per cent, after which follow in order rye, hay, rice, barley, buckwheat, and cotton, the last with an average of 13 per cent. After cotton are corn, winter wheat, flaxseed, potatoes, and spring wheat, the last with an average of 24.5 per cent of change in yield per acre from one year to the next, or one-quarter of the previous year's yield.

Kansas Figures Extreme

The experience of some individual States is worse as well as better than the average for the United States. The corn crop of Kansas is an extreme illustration. In deviation from uniformity, the yield per acre of this crop in Kansas has reached the extraordinary figures of 478 per cent of increase and 86 per cent of decrease. The averages of 52 years are 89 per cent for increase and 29 per cent for decrease.

Greatly interesting are the comparisons among the 13 crops with regard to deviation of average yield an acre from uniformity. The differences are not inherent in the crops but are caused mainly by climatic conditions and partly by insects and plant diseases, and also are partly determined by the comparative geography of the crops. The more dependable crops, under all the circumstances, are sweet potatoes, rye, hay, and rice; of medium dependency are barley, buckwheat, cotton, oats, corn, and winter wheat; of less dependency are flaxseed, potatoes, and spring wheat.

SECRETARY TELLS CATTLEMEN EUROPE NEEDS MEAT PRODUCTS

(*Continued from page 1.*)

Washington at which a proposal was made to send missionaries to the West to teach the people patriotism and to wake them up. I was asked what I thought about it. I replied that I would not guarantee the safety of such visitors and that they would discover that the Western people, as usual, were as wide awake as those of any other part of the Nation.

"When I returned to Washington I heard the same sort of talk. Then the note had come from Germany flatly repudiating everything that she had solemnly promised. Most of us knew what that meant and people again asked: 'Why, what about the West?' 'Well,' I said, 'if you have any doubt about the West'—and they had, or they would not have asked the question—'go out and mingle with its people.' I had a gentleman at my house one evening from the East and also Senator Kendrick. My eastern friend had been inquiring about the West, and I said, 'Senator, what about the West? What about Wyoming?' I am going to quote the Senator whether he wants me to or not. He said, 'Before I left Wyoming every man I saw and every man who wrote to me or telephoned me said, "We are already in this war. We might as well recognize it, and everything that we are and everything that we have is back of the Nation."' I thought I would let one of these westerners answer the gentleman rather than to undertake to answer him myself, and I think he was satisfied.

Achievements of Americans

"How many of you realized what it would mean when we took up that challenge of Germany, who wanted to know what we would do about it when she told us to stay at home and stay off the seas and keep our goods at home until she got ready to act differently? How many of you realized that in 18 months we would have three and a half million men in the Army and over two millions of them in France, three thousand miles across the water? Why, I remember talking two evenings before we entered the war with one of the ablest foreign ambassadors, and he said: 'Of course you are neutral, but if you should enter the war my government would not expect you to send more than a detachment to Europe to return the visit of Rochambeau.' A great many people thought that our part would be limited to economic and moral contributions, but you know how conditions changed. You know how Russia, that great untrained people who had been denied the things that the people of this Nation had had from the beginning, went to pieces, how Germany, mobilizing all her forces, gave us the most distressing period of the whole war from March until July, and how the American boys, cooperating with the Allies, struck the head of their advance at Chateau Thierry, when retreat began which has not stopped yet.

War's Results Defy Comprehension

"Now, while we are still in a state of war, the fighting on any considerable scale is ended. And with what results? No man in this audience or in this Nation can yet appreciate what has happened. Governments and institutions apparently the most firmly fixed in the world have crumbled. The Romanoffs have disappeared, and the Hohenzollerns and the Hapsburgs and all the other little medieval hangers-on in Central Europe; redress of the outrage done to France in 1870 has been secured, and the firm beginnings of new nations on the basis of national interests and of aspirations have been made. The Holy Land after centuries has been delivered; the Turks probably are about to be put out of Europe; a wave of democracy which, for the time being naturally threatens to run a little too far, but which will partially recede and result in firm democratic arrangements in Central and Eastern Europe, has swept over that continent; and a new Poland, a new Czech, and a new Jugo-Slavic nation make their bows to the world. And with what spirit the whole people of this Nation confronted the grave problems before them and endured sacrifices, and not only the boys who went to Europe to vindicate our rights for world freedom and liberty, not only the boys, but also the men at home and the brothers and the sisters and, even more, the mothers.

America's Spirit Noble

"It has been my good fortune during the war to go about from time to time among the people, and it was as much as

I could do to face an American audience and speak to it, because of the spirit I wituessed everywhere and of the obvious fact that the people were eager to do more thau their part, to do more than anybody could wisely direct. This I was conscious of, uo matter where I went. I remember being in Montana recently in the midst of one of the most distressed districts I have seen. I was waiting for a train at a hotel in a little town when a man came in. He did not look very successful, and I supposed he had come to discuss a loan or perhaps to make some complaint, but I was mistaken. When I talked with him about the war I soon discovered I could not tell him anything about it, either as to its origin, its progress, or its meaning; and when he left me he said: 'I have three boys in France. I suppose it would be too much to expect that I shall get them all back. I should like to, of course. I hope at any rate to get two, or one of them; but no matter what happens, they will have made their contribution to the cause of liberty and civilization.' I found that spirit prevailing everywhere. Is it not clear that a Nation permeated with that spirit from top to bottom, and with no other motive than to bring freedom to the world, was invincible?

Problems Price of Freedom

"Of course, you have had your troubles. You had your troubles during the war. You still have them. We all have them. They are part of the price we have to pay for safeguarding our freedom. It has beeu difficult for us to turn our minds from the task of winning the war to the tasks of peace. I experience the same difficulty in directing my mind from war that a very brilliant Polish gentleman and friend of mine does in directing his thoughts from his new nation. You know we have recently had a good may new foreign governments in Washington. We have had the president of the Czecho-Slovaks and the president of the Polish nation, with his aid, a gentleman who has been living in this couutry for several years. This aid has been so interested in Poland and so excited about Poland that, no matter what he was discussing, every few seconds his mind would come back to Poland and he would talk about Poland. One day he became aware of this failing and said he was reminded of a story. A French natural history society desired to know more about the elephant and offered a large prize for the best paper. It received many. It received one from a Frenchman who took as his subject, 'The Elephant and His Loves,' one from an Englishman who took as his subject, 'The Hunting of Elephants and Other Big Game in the Wilds of Africa,' one from an American with the subject, 'The Elephant and His Utilization in Transportation,' one from a Germau with the title, 'A Brief Introduction to the Study of the Development of the Nasal Bone of the Elephant,' and one from a Pole, who selected the subject, 'The Elephant and the Polish Question.' We are all like the Pole. We can not easily turn our minds away from what they have been so intensely dwelling upon. We can not get away from the war and, of course, we shall not get away from it for a long time.

What Farmers Have Done

"But we are turning to our new problems, and they are numerous and difficult. People are asking what the agricultural situation is and what ought to be done. They ask what suggestions we have to make to the producers of the country. Now, we made many suggestions to the producers of the country during the war. We urged them to increase production. We had definite programs. You know how the farmers, including the cattlemen, responded to the appeals of the Government and reacted under the economic stimulus. In spite of all the troubles, in spite of labor difficulties and adverse weather conditions, the farmers of this Nation planted in leading cereals alone 38,000,000 more acres in 1918 than they had planted on the average in peace times. The live-stock producers increased every class of live stock during the war. The report of the Bureau of Crop Estimates on live stock is just out. It shows that, since the European war began four years and a half ago, the number of horses increased 570,000, the uumber of mules 470,000, milch cows two and seven-tenths millions, other cattle eight and five-tenths millions, swine by 16,000,000, 5,000,000 within the last year, and sheep in the last two years by about two and two-tenths millions, somewhat over a million each year since we entered the war.

Plantings Increased

"Our farmers increased the wheat acreage for the 1918 crop over the prewar five-year average by 12,000,000 and produced about 918,000,000 bushels. They planted last fall 7,000,000 more acres than the record of the preceding year, or 49,000,000 acres. And now we are confronted with a very interesting problem. We do not know what the spring planting will be or how the wheat will come through the winter; but it entered the winter in much better condition than usual and is making good headway. The indications are that the spring planting will be large. We may have from 1,000,000,000 to 1,100,000,000 bushels. We need for domestic purposes about 650,000,000 bushels. The questions is whether we can sell the crop at the guaranteed price. Remember that this crop will not come in until next summer and fall and that conditions will change in the world by that time. Every nation in Europe will leave nothing undone to secure a larger production of things from which it can get a quick response. Shipping is opening up. Australia, where the price of wheat is $1.18, will come into the market with her reserves and her new production. Argentina and Algeria, the latter with a surplus now of 25,000,000, will have fair crops. It seems highly improbable that the market conditions a year from now will be such as to cause the European nations to take our surplus at the price fixed by the Government. They will not do so if they can get wheat cheaper elsewhere. The producer must get the guaranteed price for wheat he markets, and if the price falls one cent or fifty cents or a dollar below the guaranteed price the Government will sustain a loss. The only way to effect the guaranty and to carry out the pledge of the Government made during the war—and remember that Congress had voted a higher guaranty, which the President did not sanction—is for the Government to handle the wheat and to sell it at the market price. We may not lose anything. We may have to put up hundreds of millions.

Must Consider Future

"This will serve as an illustration of the difficulty confronting us. It is ouly one of many. There is no little confusion of the public mind arising from a failure to distinguish clearly between present supplies and needs and those of the future and to recognize that production plans must be made for the current season and year in view of changed and changing conditions. Somebody says: 'Europe is starving. We must send loads of things over there. Therefore, tell the farmers to get busy and to produce, produce, produce, regardless of consequences.' Those who are doing most of the talking are thinking only of present European needs and available supplies. But the condition a year from now may be quite different. A production season intervenes. Europe will plant everything she can. Her present pressing needs will have been met. Clearly anyone will assume a grave responsibility who, listening to these appeals, undertakes to incite the American farmer to unlimited production, who does not harvest until next summer and fall, and who must take the hazards of the weather and the risks of the market.

Plans Must Be Changed

"The president of your association said yesterday that the department and

the Food Administration were urging very great increases in production. They did so before the fighting ended. Their literature which your president had in mind was put out while the war was still on. Conditions have altered and we must recast our plans with changed conditions. I am very much in doubt whether one can safely give the American farmer to-day other advice than that he should follow the best agricultural practice and make his plans to suit his particular conditions and the conditions in his region. During the war we have done things that were not based on good agricultural practice and not calculated, in the long run, to produce the best results. While I think that the world market for available supplies will be such as to keep their prices at a remunerative level, I am not prophet enough to say what the conditions will be after the next harvest and at a more distant date when the products of your present live-stock planning and operations will appear on the market.

Continuing Demand for Meat Products

"There are certain things, however, that we may keep in mind. We know, of course, that Europe will have difficulty in making full recovery in respect to her live stock. In England live stock has been prudently conserved. Her herds have been preserved, especially her breeding animals and England will recover quickly. France has been harder hit. There are no accurate estimates as to how much her stock has been reduced. Switzerland has kept her herds. They have not produced as much during the war as before, but they are relatively intact. Germany and Austria have suffered greatly. There will probably be a continuing substantial demand for meat products. To what extent there will be demand for breeding animals is another question because European countries will be very conservative in introducing breeding stock from this country, or from places to which they have not heretofore looked.

Plan for Greater Population

"We may bear this in mind also. This is a growing Nation, growing so fast that very few people keep up with it. How many of you realize that in 15 years, from 1900 to 1915, we gained a population of 24,000,000, a population greater than that of any South American country except one, and greater than that of any South American country in point of producing and consuming capacity, a population three-fifths that of France. We have gained three and a half millions of people during the European war. I assume that we shall gain at the rate of 1,000,000 or more for the next 20 or 25 years. Now, while the increases I gave a moment ago are large and gratifying, they were due to the existence of recent peculiar conditions, and we must recognize that live stock production in this country has not kept up with increasing population. The number of cattle in 1918 is given at 44,000,000, but we had about 42,000,000 at the 1910 census. The increases are recent. We have got to plan for a population in the next 20 years of 20,000,000 or 25,000,000 more, and we must make our plans now. We can not largely develop the live-stock industry overnight or wisely alter their permanent foundations quickly.

Plain Laws Govern Farming

"In making these plans we must base them on sound economic considerations, looking to their foundations of feed, of pasturage, and of grazing. We have to keep one fact in mind which city people especially seem to ignore. There is more nonsense talked about farming and about getting people to go into farming and to stay in farming than about any other one thing. People are constantly crying: 'Back to the land.' They seem to think there can be an indefinite number of farmers. Now people are going into farming and are going to stay on farms if farming pays and if country life is attractive, and not otherwise; and just enough people will stay on farms to produce the supply the Nation and the world seek at a price which will justify it. I am pestered no little by city people who ask: 'Why do you not continue to urge the farmers to produce and to produce and to produce?' Of course that would be very nice for them, especially if they could get the products for nothing, but that is not the way agriculture proceeds. It must show a reasonable profit. This does not mean necessarily that prices need stay at the present level and continue to rise. It may be possible to reduce costs. They will fall with the return of normal conditions. We may lessen them by controlling or eradicating animal and plant diseases. You, the Department, the agricultural colleges, and other agencies are engaged in this task.

Improve Forest Grazing

"We can help by improving grazing conditions. We have greatly bettered them in the National Forests. I have been advocating for six years something that seemed to me obvious from the beginning, that there should be improvement of grazing on public lands. The Department of Agriculture has been urging this for 15 years. The Department of Agriculture has been urging classification of public lands, not that there should be a rigid classification which could not be changed, but one which might be reconsidered at frequent intervals. Clearly, grazing should be regulated on the public lands so that they may support many more animals. I was glad to hear a representative of the Department of the Interior say yesterday that he is now in favor of this policy. I have been surprised that he has not been in favor of it from the outset. We tried to get the Kent bill through. It might have gone through if there had been a favorable report on it from both Departments. Now comes the suggestion at this late day from the Interior Department that there should be regulated grazing on the public domain, that it should and must be handled by that Department, that there should not be two agencies controlling grazing, and that, therefore, the National Forests should be turned back to the Interior Department. And Why? Because that department holds the title to the land and the Government would not think of transferring title to another department. A trifle amusing, is it not, both the reason and the proposal? The title to land in the National Forests is in the Interior Department and the grazing in them is regulated by the Department of Agriculture. Obviously, if the Government wished, that department could regulate grazing on the public domain outside the forests with title still lodged in the Department of the Interior. Or even, the latter department might keep title and apply to the public lands grazing regulations similar to those enforced by the Department of Agriculture in the forests. The reason assigned is not pertinent and can not be controlling. All the reasons are against the proposal. The control of grazing should not follow the location of land title. It should follow the location of expert agricultural knowledge and successful experience. Grazing is an agricultural problem and should be handled by agricultural experts. Land lawyers can handle and should continue to handle land titles, but I do not believe that they can or should handle live-stock problems. Would it not be a little singular to transfer regulated grazing from the department which has favored it from the beginning, made a success of it, and demonstrated its value to one which has had no experience with it and no facilities for controlling it?

Department's Work in Forests

"Grazing is not the only agricultural activity in the national forests. There are others. There are problems of reforestation and of insect, game, and

predatory animal control. The services of a number of bureaus of the Department of Agriculture are constantly and increasingly required, such as Forestry, Animal Industry, Entomology, Biology, and Markets. Forestry problems are mainly agricultural problems. Why, this meeting has seemed to me to be a sort of a conference of the Department of Agriculture. A considerable part of the speech of your president dealt with the Department of Agriculture. Most of your speakers yesterday and to-day have been drawn from its staff. I have no personal interest in this matter. It would save me a great deal of trouble if I had nothing to do with it; and, after a few years at most, I shall not have anything to do with it; but I am interested in the merits of this question and in seeing it properly handled. I repeat that grazing, the handling of live stock, the control of predatory animals, of poisonous weeds, of reforestation, of marketing, are all agricultural problems and the Department of the Interior could not properly deal with them unless it took over the Department of Agriculture or built up a duplicate of it.

Constructive Work Ahead

"I wish very much that I might speak to you about some other things. We have very definite constructive proposals in mind—to promote profitable agriculture and to develop a more attractive country life. In fact, nearly everything being done by your association and similar associations, by the Department of Agriculture, with its 23,000 people, and the State colleges, constitutes an attack, a persistent and quiet attack, on the problem of profitable agriculture and better rural life. Their work is not spectacular. You do not hear much about it, especially in the city; but men and women of the department and colleges are working hourly in season and out of season without advertisement, and are getting results. I sometimes think it is almost a mistake to do things as well as some of our people do them, because they do not have time to get on the housetop and shout about it, and many people do not seem to think anything is being done if they do not hear a lot of shouting.

"Speed Up Road Building"

"I think we ought to speed up our road building. I need not argue the value of good roads. I have suggested, with the President's approval, that we increase the Federal funds to be used to supplement the Federal aid road appropriation, not only because roads are indispensable, but also because public work of this sort may profitably be extended for the purpose of furnishing employment to surplus labor during the transition period. I am suggesting that a part of the additional funds be used for further construction of roads in the National Forests.

Markets Work Praised

"I wish I had time to speak of marketing and of the Bureau of Markets. Mr. Brand has had a difficult task in organizing his great service, the greatest of its kind in the world to-day. He has developed it from nothing, having to get men for work of great difficulty for which few men had been trained. The bureau is now spending something like $4,000,000 to aid the producers of this country to distribute their products to better advantage. I need not tell you that distribution is at least the second half of agriculture; and yet some gentlemen are complaining because we wish enough money to enable us to maintain our present undertakings. One part of the service alone is worth what the Government is spending on the bureau. I refer to the market news service. I can not take time to explain what it is doing. You know of some of its work and value it. I fear that service will be cut down. In my judgment it ought to be expanded. Four millions of dollars is not too much to spend to try to aid the farmers of this Nation in marketing their products.

Should Regulate Stockyards

"There are parts of our marketing arrangement in which you are and have been deeply interested. I refer to the stockyards and the packing houses. Two years ago I expressed my views before this body on the necessity of controlling these agencies. I have been convinced for many years that the Government should regulate them. I have really got beyond the point of seeing the necessity for further argument. Not only you, but all the people of the Nation, are intensely interested in what happens in the stockyards and the great packing houses. Their operations affect every man, woman, and child in this Nation. These establishments, as the lawyer would say, are largely affected with the public interest. I do not know what percentage would express the public interest, but it would not fall very far short of 100 per cent. The people of this Nation are not willing to let a few men have an absolute determination of what happens in them, of what happens to the live stock of the Nation from the time plans are made for its production on the farm until it reaches the consumer. There is too much at stake. The fortunes of too many people are involved. Of course, those in control of the packing houses and the stockyards say that everything is just right. As Senator Kendrick says, they admit it. They have admitted it to me. They even spend great sums of money in the newspapers making admission of it. One of the chief representatives of the packers told me several years ago that the whole business was as clean as a hound's tooth and that there was nothing to be apprehensive about. I replied that, unfortunately, the people did not seem to believe this. They had their suspicions. I added: 'If what you say is true, the people ought to hear the truth from an impartial source. It would be good business for you to have the people told the facts by an impartial authority and good business for you to be rid of the suspicion that attaches to your statements and operations.' Again, they admit that they have the requisite wisdom to handle these great establishments. They admit that they can handle them better than anybody else. They are wiser than all the people. That is what the paternalists, the favored few, have said from the beginning of history. That is the essence of the old medieval theory of government. A few men are wiser than all the people. Of course, I do not admit that. I do not admit that the few men in control of the packing houses and stockyards are wiser than all the stock men of the Nation and all the consumers. I do not believe that they should be permitted uncontrolled to determine all the issues in which the public is so vitally interested. If I had to admit that they possessed all the wisdom they say they do, then I would go further and say that I would prefer to have a little less wisdom, a little less paternalism, and a little more freedom, and, if necessary, to pay the difference.

Favors Kendrick Bill

"I do not profess to have enough wisdom in a final way to indicate the items of the necessary legislation. Several proposals are pending in Congress. My opinion is that the Kendrick bill embodies the correct principle of action and furnishes the best basis for discussion and criticism yet presented. I believe that, with such amendments as may be proposed as the result of full consideration, that measure would probably accomplish the purpose you and all of us have in mind. It may not prove to be perfect. Very few measures do. If it does not, it can be amended; and if regulation and control should fail, then the time will have arrived to take the next step.

Europe in Stricken Condition

"You are naturally interested in the probable course of trade, now that the fighting has ceased. Many people are showing interest in it. Many of them are writing to me asking what I think of the future. Some of them seem to be

apprehensive. They seem to be alarmed lest Europe should flood the markets of this Nation with cheap goods, alarmed that this Nation may not be able to hold her own proper place in the markets of the world. Apparently there are those still left who believe that one nation can not profit except at the expense of another; who believe that a nation does not profit unless it exports useful commodities and imports nothing except gold. They do not seem to realize that this process can not be continued for a long time. They are unaware that too much gold even may be hurtful. The things that any nation really wants are services and commodities. These a nation can not get except by furnishing services and commodities. This country has been for many years an exporter of agricultural products. Before the European war you will find upon examination that the excess of our agricultural imports ranged from three hundred millions to four or five hundred millions of dollars; but people ask if this will continue. They ask if Europe will not now have a relative advantage. They seem to assume that Europe has had time to pile up masses of commodities for export and that Europe will possess from this time forward great masses of cheap labor. How inadequately they seem to have pictured the present actual conditions in Europe! Think of it. They tell us that in Europe, outside the Balkans and Turkey, more than 7,000,000 of men have been killed and 14,000,000 wounded, many of them permanently incapacitated. We know there are a great number of widows and orphans. We are aware of the destruction of property, of shipping, of the economic, social, and political disruption. Clearly it will take the powers of Central and Eastern Europe many years to lay the firm foundations of modern democratic governments, to set them in full operation, and to restore normal economic conditions and processes. The masses of the people in these sections will for the first time have something to say about economic and governmental matters. They will have something to say about their conditions and standards of living, and it is unthinkable that they will permit a return to former conditions. Obviously, they will be greatly burdened also with war debts. It is probable that the war debt of England will equal 30 per cent of her estimated real wealth; that of France 50 per cent; of Germany 45 per cent; of Austria 65 per cent; and of Italy 30 per cent. In each case the annual interest charge will be as great as the former national budget, or greater, and in every case provision must be made for a sinking fund. Yet some of our people seem to fear that this Nation, industrially almost untouched by the war, can not hold its own with stricken Europe. Should our thought not be rather how we can aid the people of Europe to get on their feet once more and to contribute in full measure to the world's dividend of useful commodities?

Would Prevent Future War

"The hour is too late for me to say much more. I can not, however, close without speaking of a subject which is uppermost in my mind. We have won a great fight. We have safeguarded this country from a terrible menace. For the last time, in my judgment, has the freedom of the world been seriously menaced by the will and power of despots. No arrogant governing body in the world is likely again to challenge the free nations of the world. Germany made a serious mistake in challenging the free nations of Europe; she added to it greatly in challenging this Nation. Germany made many mistakes, but none so fatal as that of thinking that anything her submarines could do to the allies would be appreciable in comparison with what this Nation would do to her if she entered the war. I say that this menace is past. Germany will be incapable at least for many years of threatening any of the great nations. She will have all she can do for some time to cope with her domestic problems. This fortunate outcome justifies in no small measure the sacrifices of our boys and of our people at home; but the justification and satisfaction will be incomplete unless we secure at this time some kind of concert of action on the part of the civilized nations which will prevent a recurrence of this tragedy.

Must Have World League

"I am not prepared to offer a concrete scheme of a league of nations. We doubtless shall not be able to evolve at this time a full-fledged and final plan. We can make a beginning. We must have a system of international law that will have a sanction, a sufficient body of law which will reflect the common purposes of civilized nations. Of course, nations have very much in common. They have been drawn closer and closer together within our own generation. Every day witnesses a closer union. The nations of the world to-day are nearer together than our States were a few generations ago. Some seem to fear an impairment of our independence if a league of nations is formed. Of course, in a very real sense we are not completely independent. No nation in the world to-day is completely independent. We have more fully recently discovered that every nation is dependent upon every other nation. We have found that part of the world can not go to war without involving every other part. I do not believe that the development of real international law with a sanction and the formulation of a proper league of nations will restrict our freedom or independence. On the contrary, it will increase it. Good laws, whether municipal, national, or international, do not limit freedom. They extend it. They restrict the activities only of the criminals and the desperadoes. I believe that provision can be made whereby the entrance of nations into war can be retarded, and, in many cases, prevented. I believe that many international troubles can be settled by orderly processes just as individual and national troubles are settled. I am not apprehensive that the Monroe Doctrine shall be invalidated. I believe rather that what is proposed will be in the nature of an extension of that doctrine over the world. I for one shall feel greatly depressed if there is not enough wisdom and unselfishness in the world to permit the conference now being held in Paris, to which our President went with his eyes open knowing the difficulties as well as the supreme importance of action, to arrive at an agreement which will have the result of placing the combined force of civilized nations as a barrier to a recurrence of such a crisis as that through which we have passed.

Discounts Partisanship

"May we not all look at this matter in a broad spirit of humanity and not from the lower plane of partisanship? We have stood together during this war as a people have never before stood together. It has enabled us to win the war and to win a cause. Do not the tasks of peace warrant an equal spirit of patriotic devotion and unity of purpose? Of course, I realize that there will be differences of opinion. I believe in parties; but I do not believe that to have parties it is necessary to have appeals to prejudice and a riot of misrepresentation. If all the facts bearing on questions at issue were available; if, so to speak, all the cards were on the table with their faces up, there would still be room for differences of opinion and for the formation and conduct of parties. Let the public demand that their representatives be big enough and broad enough to deal with the facts and nothing but the facts, to interpret them to the best of their ability and conscience, and to follow their conclusions regardless of consequences. Democratic government will be sufficiently difficult if we apply this standard. If we permit any other to prevail its future will be full of doubt. Let us remember the blessings of our institutions and keep before us their real spirit and meaning. Let us see to it that those who come among us from other

countries not so favored, whose inheritance makes it difficult for them to understand the meanings and purposes of democratic institutions, shall catch their significance and especially be made to understand that here we have a rule of law, and not of whim or of force. There are some of our people who need an induction into the spirit and meaning of democracy. They must be taught that here any good cause can get a hearing, that those who advocate it must convert the majority, and that the majority will not permit any reckless, misguided minority to attempt to secure its purpose by violence."

GOVERNMENT NOT TO SELL WOOL AGAINST DOMESTIC PRODUCERS

The War Department authorizes the following statement from the office of the Director of Purchase, Storage, and Traffic:

Many inquiries have been received from wool dealers, woolgrowers, and wool manufacturers in regard to the policy of the Government in disposing of the stocks of wool held by the War Department. In answer to these inquiries the War Department states as follows:

"First. It is the intention of the War Department to continue to sell at public auction such wools as manufacturers may require with a minimum reserve price the equivalent of the British civil issue price. This basis of the British civil issue price will be maintained as the minimum reserve price until July 1, 1919.

"Second. It is not the intention of the War Department in the sale of wool now owned by the Government to compete with the domestic producers of wool. It is the intention of the War Department on July 1, 1919, when the domestic clip will probably be arriving in the markets in sufficient volume to supply the wants of manufacturers, to discontinue offering at auction or otherwise until such a time as the domestic producer shall have had ample opportunity to market his 1919 clip, November 1, 1919, those grades of wool remaining in the hands of the Government that would compete with the product of domestic woolgrowers."

During the normal period of five years, 1910–1914, the corn crop value was 26 per cent of the total crop value of the farms of the United States; tame hay, 13 per cent; cotton lint, 12 per cent; wheat, 10 per cent; oats, 7 per cent; potatoes, 3½ per cent; barley and tobacco, each 2 per cent; sweet potatoes, seven-tenths of 1 per cent; rye and flaxseed, each one-half of 1 per cent.

Big Stocks of Wheat Found in Survey Made January 1; Other Foods Are Shown

Commercial stocks of wheat reported in a survey made by the Department of Agriculture for January 1, 1919, amounted to 191,775,417 bushels. These holdings, reported by 9,303 firms—elevators, warehouses, grain mills, and wholesale dealers—were more than twice as large as the stocks held by the same firms a year earlier, the actual percentage being 215.8 per cent of the 1918 stocks. The figures refer to stocks actually reported, and do not represent the total commercial stocks of the country, nor do they include stocks on farms.

Visible Supply Figures Compared

The commercial visible supply figures, as published by the Chicago Board of Trade for the uearest date (Dec. 28, 1918) show 117,225,000 bushels of wheat, as agaiust 18,963,000 bushels a year ago. Correspouding Bradstreet figures for January 4, 1919, show 129,627,000 bushels, as against 26,476,000 bushels for 1918. As compared with the same date of last year, these figures, as well as those obtained by the more extensive survey, show a very great relative increase in commercial stocks of wheat on January 1, 1919.

Other Cereals, Flour, and Corn Meal

The commercial stocks of other cereals reported for January 1, 1919, according to the department statement, were as follows: Corn, 17,834,130 bushels; oats, 66,448,855 bushels; barley, 25,183,497 bushels; rye, 18,775,241 bushels. These stocks represent the following percentages of the corresponding stocks on January 1, 1918: Corn, 75.8 per cent; oats, 97.5 per cent; barley, 121 per cent; rye, 256.2 per cent.

The commercial stocks of flour and corn meal, as reported for the survey, were: Wheat flour, white, 5,943,687 barrels; whole wheat and graham flour, 95,021 barrels; barley flour, 338,626 barrels; rye flour, 400,728 barrels; corn flour, 40,264,120 pounds; corn meal, 60,920,401 pounds; buckwheat flour, 20,046,142 pounds; mixed flour, 31,018,580 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 127.5 per cent; whole wheat and graham flour, 83 per cent; barley flour, 882.3 per cent; rye flour, 131.8 per cent; corn flour, 724.9 per cent; corn meal, 231.9 per cent; buckwheat flour, 196 per cent; mixed flour, 319.3 per cent.

Stocks of Selected Commodities

Elevators, warehouses, and wholesale dealers reported stocks of beans, amounting to 7,976,281 bushels, while wholesale grocers and warehouses reported the following commodities and in the quantities indicated: Rice, 55,865,268 pounds; rolled oats, 68,605,800 pounds; canned salmou, 83,518,502 pounds; cauned tomatoes, 242,056,354 pounds; canned corn, 107,346,665 pounds; sugar, 115,481,714 pounds. These stocks represent the following percentages of the correspondine stocks on hand January 1, 1918: Beans, 173 per cent; rice, 80.8 per cent; rolled oats, 155.8 per cent; canned salmon, 88.6 per cent; canned tomatoes, 159.2 per cent; canned corn, 144.9 per cent; sugar, 145.4 per cent.

Stocks of condensed and evaporated milk were reported by condensaries, cold storages, warehouses, and wholesale grocers, as follows: Condensed milk, 38,360,694 pounds, evaporated milk, 84,337,328 pounds. The holdings of condensed milk reported for January 1, 1919, represented 131.5 per cent of the stocks held by the same firms a year earlier, while the holdings of evaporated milk represented 80.4 per cent of the January, 1918, stocks.

MORE TEXTILE MACHINERY IDLE

Manufacturers Give Reasons for Closing Down Woolen Looms

Only 62 per cent of all looms making wool goods in the United States were in operation on January 2, 1919, compared to 77 per cent on December 2, and 78 per cent on November 1, 1918. These percentages are given by the Bureau of Markets of the United States Department of Agriculture in its monthly report on active aud idle wool machinery. The report also shows a decrease in the number of woolen cards in operation on January 2, the percentage being only 68 compared to 86 in December and 89 in November. Figures for combs were: January, 69 per cent; December, 82; and November, 76.

Only 63 per cent of woolen spiudles were in operation on January 2, while the percentages for December and November were 84 and 88, respectively. On January 2 worsted spindles in operation were 62 per cent, a decline from December when 73 per cent were ruuning compared to 70 per cent in November.

Among the reasous given by mills for idle machinery were strikes, cancellation of Government orders, and the closing down for the taking of inventories.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — FEBRUARY 19, 1919 — No. 29

URGES STATES TO LEGISLATE AGAINST SHEEP-KILLING DOGS

Secretary Asks Twenty Governors to Recommend Protecting Laws

Dogs Discourage Farmers, Department's Field Representatives Report; Matter One for Consideration of States

Enactment of more adequate State laws to control sheep-killing dogs is urged by Secretary Houston, in a letter just sent to the governors in 20 States. The Secretary points out that although there has been a gratifying increase in the number of sheep in the United States in the past year, there is room for further expansion of the industry. Farmers, he says, are discouraged in many instances from keeping sheep on account of the danger of damage by dogs.

The letters were sent to the governors of Arkansas, Delaware, Florida, Georgia, Indiana, Iowa, Kansas, Louisiana, Maryland, Minnesota, Mississippi, Missouri, New Hampshire, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin, where State legislatures are now in session.

Following is the letter:

Dogs Discourage Industry

"I understand that many States now have under consideration the matter of legislation to encourage the larger development of the sheep industry by removing or controlling the dog menace. During the past year, as you perhaps know, there has been a gratifying increase in the number of sheep in the United States. There is undoubtedly room in many sections of the country for further expansion along this line, especially in the settled farming areas. The field representatives of this department, however, generally report that farmers are discouraged in many instances from keeping sheep on account of the danger of damage by dogs.

"The question seems to be primarily one for consideration and action by the various States. I am, therefore, taking the liberty to bring the matter to your attention, with the hope that you will look into the situation and make such recommendations as may seem wise to the legislature of the State. May I not, in this connection, call your attention to the carefully drawn and apparently well-enforced laws of several States, notably those of New York and Pennsylvania, which are set forth in the bulletin (Farmers' Bulletin 935) inclosed herewith."

GET IMPLEMENTS READY FOR SPRING.

All users of farm implements should anticipate, so far as practicable, the necessity for repairs and replacements sufficiently in advance of the working season to make it possible to put their implements in good working condition before the spring operations begin. This is the gist of a telegram from the Secretary of Agriculture to E. W. McCullogh, of Chicago, secretary of the National Implement and Vehicle Association. Secretary Houston's telegram was in response to one from Mr. McCullogh advising him that manufacturers of and dealers in all lines of farm-operating equipment have agreed, in the interest of economy and conservation, to join in urging farmers to inspect their equipment and to order necessary parts in advance of the time they are needed.

Manufacturers and dealers declare that if they can know sufficiently in advance the needs of the farmers for repair parts, these parts can be supplied when they are needed. If the needs are not known to the manufacturers and dealers until the actual time for use, troublesome and costly delays are likely to be caused—delays that may be felt in decreased production at harvest.

NEW GRASSES SUCCESSFUL

In the Imperial Valley of southern California Rhodes grass has been found to grow on soils too salty for alfalfa. The conditions there under irrigation are somewhat similar to the conditions where this grass is extensively grown in Texas. Reports from southern California indicate also that Napier grass is proving a valuable forage for that area. In the fall of 1917 cuttings of Napier grass were sent to several points in the Gulf States to test its adaptability to that section, where it is expected it should prove valuable as a winter silage.

WARNS OF FOREIGN LIVE STOCK COMPETING WITH U. S. PRODUCT

Chief of Animal Industry Would Seek More Quality and Quantity

Recommends That Scrub Be Made "the Missing Link" in Address to Members of Southern Live Stock Association

"If the United States is safely to retain the agricutural leadership established by war, we must improve both the quality and the quantity of live stock," said Dr. J. R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture, in an address in New Orleans February 12 to the Southern Cattlemen's Association.

"Failure to maintain our live stock in proportion to our population means dependence on other countries," said Dr. Mohler. "It means dependence on them for meat, for leather, and for animal fats. It means dependence on them also for fertilizers with which to maintain crop yields in the absence of manure. It may even mean dependence on them for milk with which to feed our children, as Europe lately has been depending on the United States for milk in condensed or powdered form. In other words, if we fail to feed ourselves or to satisfy our home markets, some one else will, and in fact is already doing so.

Meat Imported Last Year

"Imports of meats and meat products by the United States in 1918 exceeded 100,000,000 pounds. These were received principally from Argentina and Canada. A report lately received from the American consul general at Buenos Aires contains some illuminating public remarks by the manager of an Argentine packing establishment. He stated that 'large quantities of canned meats are now regularly sent to the United States, the great cattle country of former years;'

also, 'that the United States can no longer be regarded as a meat exporting Nation.' "

Discussing the rapid development in artificial refrigeration and ocean shipment of meat, Dr. Mohler said that "important changes involving the meat industry are going on constantly and South America is preparing to feed nations that fail to provide meat for themselves." Discussing why South American countries are able to produce meat cheaply enough to compete with the home-grown products of other countries, he mentioned the systematic upbuilding of South-American herds to a superiority over even imported strains, the extensive growing of alfalfa, insuring an abundance of the best pasturage, and the fact that the cattle are in the open throughout the year.

South Has Similar Conditions

"Those conditions are strikingly similar to conditions here in the southern part of the United States," said Dr. Mohler. "I want to call your attention especially to the importance of better types of live stock. The proper type of pure-bred animal—whether cattle, hogs, sheep, or poultry—makes its gains vastly more economically than scrub stock. The same is true of dairy production."

Complimenting the South on cleaning the cattle fever tick in less than 13 years from two-thirds of the area originally infested, noting that a few years more of vigorous work will suppress hog cholera entirely, and remarking that "a healthy beginning" has been made in the systematic eradication of animal tuberculosis by the accredited-herd plan, Dr. Mohler declared, "With these three scourges at last out of the way, or reduced to impotency, and the lesser ailments cut down in proportion, the United States should be a live-stock region where animal improvement should continue with accelerated progress. The United States has less than half as many serious animal scourges as exist in the world, largely because this country has had a good start in disease control and is following it up. That phase of the work, however, has been the prevention of loss; an equally important task is the upbuilding of what we may call our live-stock assets."

Scrubs Should Become Extinct

"Scrub live stock is no longer fit for perpetuation in the United States. A scrub is wasteful of feed, and wasteful of its owner's labor. The scrub animal has served its purpose as a connecting link between the old obsolete method of farming and new progressive methods. Thousands of farmers in this country already have discarded scrub stock and are better off because of that decision. Pure-breds are worth more to keep and are worth more to sell. The scrub animal has been useful as a connecting link, but our aim from now on should be to make the scrub extinct and to make it the missing link, so far as live stock is concerned. That can not be done immediately, but it is the goal toward which we should work.

"Animal evolution is constantly going on. You are working here in the South where the field for improvement is ripe. If you are just beginning, begin right. If you have started wrong, get right as soon as you can. This means the wise choice of breeding animals and following out a consistent plan. The kind of live stock which the South is to have eventually is merely the sum total of what each farmer chooses. You can help to make the unprofitable scrub cow extinct. The method is obvious—just stop breeding that kind. You can continue the extermination of the principal animal diseases, and once they are stamped out the quarantine services of the bureau and the various States will see that they do not get back."

OHIO COUNTY STRONG FOR LIME

Farm Bureau Starts Movement to Assure Better Soil

The farm bureau of Lawrence County, Ohio, made liming of soil one of its major projects in 1918, and the county used 2,000 tons of ground limestone. Only 40 tons were used in 1917 in the county. Much lime was secured from a dolomite factory that offered at low cost a waste product testing above 90 per cent carbonate. Most of this waste lime was used by farmers near the river and railroads, but the farmers farther removed have caught the spirit.

A community crusher began operation last August and another will be installed this winter. Three farmers are burning limestone on their farms for agricultural use.

FLORIDA COUNTY TO RAISE CANE

Farmers in the Vero (Fla.) district are planning to raise cane this year and make St. Lucie County sweeter than it has ever been before. Through their community organizations they have contracted for a $15,000 sirup mill, to be erected this year, and they have pledged themselves to plant at least 100 acres of sugar cane and 300 acres of sorghum.

ENTRY OF PLANTS RESTRICTED TO PROTECT AMERICAN CROPS

No Plants Completely Excluded by Quarantine No. 37, Effective June 1

Department Tells Reasons for Far-Reaching Regulations; Leading Nurserymen Coincide in Decisions of Government

The effective date—June 1, 1919—of Plant Quarantine No. 37 will mark the operation of new and strict regulations governing the importation into the United States of plants and plant products. The quarantine order has been promulgated by the Secretary of Agriculture to check so far as possible the introduction of more dangerous crop enemies. Experts of the Department of Agriculture estimate that the losses caused by the pests already introduced, for the most part through the agency of imported plants, aggregate half a billion dollars annually.

Outstanding Features Summarized

Important provisions of the new quarantine are as follows:

Requires permits and compliance with regulations for importation of lily bulbs, lily-of-the-valley, narcissus, hyacinths, tulips, and crocus; stocks, cuttings, scions, and buds, of fruits for propagation; rose stocks for propagation, including Manetti, Multiflora, Brier Rose, and Rosa Rugosa; nuts, including palm seeds, for propagation; seeds of fruit, forest, ornamental, and shade trees, seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants.

Leaves unrestricted, except in special cases, importations of fruits, vegetables, cereals, and other plant products imported for medicinal, food, or manufacturing purposes; and field, vegetable, and flower seeds.

Excludes all other classes of plants for propagation, including fruit trees, grapevines, bush fruits, grafted and budded roses, forest, ornamental, and deciduous trees, ornamental and deciduous shrubs, pine trees of all kinds, broad-leaved evergreens (such as azaleas and rhododendrons), and a long list of plant material commonly known as florists' stock.

Excluded plants may still be imported through the agency of the Department of Agriculture, in limited quantities to supply the country with novelties and necessary propagating stock, such entry being safeguarded by the highly-developed inspection and quarantine service

which has been organized by the department.

The conditions of entry of these various classes of plants and plant products are given in the regulations under the quarantine. A news letter giving more detailed explanation of the conditions governing importations still permitted shortly will be sent by the Department of Agriculture to all horticultural, nursery, and florist trade journals.

What Quarantine Embodies

Quarantine No. 37 voices the belief that the policy of practical exclusion of all stock not absolutely essential to the horticultural, floricultural, and forestry needs of the United States is the only one that will give adequate protection against additional introductions of dangerous plant diseases and insects.

It represents the combined judgment of the large body of plant experts of the United States Department of Agriculture and the much larger body of State experts, including the experts of the State departments of agriculture and horticulture and of the experiment stations. This quarantine, furthermore, was urged and is indorsed by the American associations of horticultural inspectors, official entomologists, and plant pathologists, by forestry and horticultural associations, and also by leading plant propagators. It represents years of careful consideration by experts of the department and of the several States and of interests concerned, followed by a large and representative public hearing, and thereafter by several months of further investigation and consultation with principal producing nurserymen and florists of this country. Quarantine No. 37 is in no sense, therefore, thought subject to the charge that it represents precipitate action on the part of a few individuals.

Opposition Restricted

Agitation against the quarantine has been instituted by a small group of importers of the prohibited stock and does not represent the viewpoint of the great body of producing nurserymen and florists of the United States, according to department officials, who claim that the main lines of this quarantine are undoubtedly justified, although the action taken is subject to amendment on presentation of showing of essential needs which can be granted without serious risk.

The governing principle in this quarantine is to limit plant introductions to the classes of plants which have been represented by the plant interests concerned in this country as being essential to plant production—in other words, the raw material out of which salable fruit trees, roses, etc., are made. To

(*Continued on page 11.*)

CATTLE-TICK CAMPAIGNERS MAKE PLANS FOR 1919 WORK

Animal Industry Chief Speaks at Opening of "Final Big Drive"

Ending of War Marks Beginning of New Era in Battle for Southern Live Stock; To "Dip That Tick in March" This Year

The meeting of Federal cattle-tick inspectors at New Orleans, February 11 to 13, was the "council of war" that started the final big drive in the eradication of the destructive enemy of the live-stock industry in the South.

The "last big drive" will continue several years, at least, for the Federal quarantine will not be lifted until the tick is so far banished that it no longer constitutes a danger, and one State compulsory dipping law does not become wholly effective until 1922.

The reason why 1919 is regarded as marking a new era in the tick fight is that 1919 is the first year after the conclusion of fighting in the world war. In both 1917 and 1918, when the United States was actively in the conflict, new records in tick eradication were established, despite the demands of war, and it is believed that with increasing energy being given to the tick campaign it will sweep forward with a momentum never before equaled.

To "Dip That Tick in March"

One phase of the 1919 campaign has been definitely decided and planned. That is to dip as many cattle as possible in March, when the ticks become active after the cold season. Heretofore many cattle owners have waited one or two months before beginning dipping, and the parasites thus have had several weeks in which to multiply. Furthermore, cattle begin in March to disperse from winter ranges or quarters to wider areas from which it is difficult to gather them for dipping. The fact that "two ticks in March mean thousands in June and millions later" is being impressed. By getting an early start on the tick, the tick fighters hope to cut down by many millions the number of pests active in the summer.

Make 1919 Worst Year for Tick, Is Slogan as Campaign Opens

Dr. John R. Mohler, Chief of the Bureau of Animal Industry of the department, brought out the slogan, "Make 1919 the worst year for the tick," in an address at the opening session of the cattle-tick conference.

"This conference," said Dr. Mohler, "would fall far short of its purpose unless while meeting here we get renewed spirit from past achievements to surmount the obstacles that remain before American soil will be freed forever from the cattle fever tick. It would not be worth while unless everyone of us carries away with him a clear idea of what we plan to do this year, and a determination to do his full part.

"There is no man in this meeting who can not be proud, now and hereafter, of his share in the fight against the tick. You are doing a constructive work that has met with phenomenal success, especially in recent years, and in the first years as well, considering the prejudice and ignorance that had to be combated at that time. The work that has been done is its own argument, and the effort that remains is amply justified by the benefits from past accomplishments.

"When the work is finally completed, when the tick has been permanently eradicated, you will have erected your own monument, and if it so pleases you at that time, you are at liberty to pass on to the heaven of efficient tick eradicators, with the full knowledge that you have done something of real value for your country and the human race.

To Make the South Tick-Free.

"Few, if any of us, have had the privilege to wear the khaki in the world struggle that has just ended in complete victory for the allies and the United States. It would be presumptuous to think that any American who did not risk his life for his country could have given service comparable to that of the boys who bled and died. But at the same time, we were all working for Uncle Sam, and we were all doing work that was essential to victory. It is not too much to believe that had the war stretched several years more it would have been decided by the reserves of beef that the South possesses as the direct result of tick eradication. Even with our comparatively short participation the meat that the South was able to produce because of the absence of the tick weighed powerfully in the food balance. So, while you wore no uniforms, dipped cattle without the inspiration of brass bands or bugle calls, and performed tasks that might have seemed humdrum when your hearts were 'over there,' you have done as your country instructed, and no man can do more than that.

"But your work was not for the war alone, and the benefits of it will remain long after the gory horror of autocracy's downfall will be remembered only for the

heroes it produced. You are making the South tick-free, and when you have done that the Nation will be your debtor.

Records Made During War

"Tick eradication in the past two years has made a notable record. In 1917 the 70,754 square miles released from Federal quarantine far surpassed the record of any previous year. Again, in 1918, the release of 79,217 square miles eclipsed all previous accomplishments. These figures would command attention at any time. But they become truly remarkable when we remember that in 1917 and 1918 the United States was at war and every energy of the American people was being bent toward the one aim of whipping the Hun. Many of our bureau men joined the colors, tens of thousands of men left the farms of the South for the Army; it was difficult to ship supplies into this section because of the demands of the cantonments; everything was submerged beneath the one dominating purpose. But despite all that, tick eradication in 1917 broke all records, and in 1918 we found that 1917 was nearly 9,000 square miles too slow.

Credit Belongs to All

"Much of the credit for these record-breaking accomplishments belongs to you, the representatives of the Federal Government, in the fight against the tick. But we should be vain and foolish if we tried to appropriate all, or even most, of the credit. We must give full recognition, in the first place, to the cooperative work of the State governments and State agricultural colleges, and the county governments. We must acknowledge the aid of such organizations as the Southern Cattlemen's Association, the Texas Cattle Raisers' Association, the Southern Settlement and Development Organization, the Georgia Land Owners' Association, and the Southern Pine Association. We must recognize the consistent and clear-sighted support of the daily and weekly newspapers and the agricultural and live-stock journals of the South, without whose aid we might still be battling with prejudice everywhere. And we must give due credit to the associations of the bankers and other business men who have led their communities to a realization of the benefits of tick eradication.

What Southern People Have Done

"More than that, we must, everyone, take off our hats to the farmers, live-stock raisers, and other people, in general, of the South. We must remember that while these people were helping tick eradication, they were not only buying Liberty bonds, subscribing to the Red Cross and other organizations, and sending their sons to war, but were accomplishing notable things in raising the food crops that were regarded as essential to a strong America. When the slogan, 'The South must feed itself,' was sounded, the farmers of the South answered. Before the war the South imported annually about $600,000,000 worth of corn, hay, grains, mixed feed, flour, meat and meat products, dairy products, poultry and poultry products, and canned goods. There has been a great change. In 1918 the 15 Southern States, including all the tick-infested States, produced 141,787,000 bushels more corn than they harvested in 1909. The 11 States comprising the cotton belt produced 135 per cent more wheat in 1918 than in 1909. These same States during the same period increased their oat crop 133 per cent; their hay yield, 128 per cent; Irish potatoes, 117 per cent; and sweet potatoes, 67 per cent. The same tendency is shown in live-stock production. As an instance, in 1914 Mississippi marketed only 86,229 fat cattle, while in 1916 it shipped 156,237 animals to the St. Louis market, an increase of 181 per cent.

"When we look back over what has been done and consider that we are sure of the increasingly strong support of the southern people who have done such great things, there is no reason whatever to fear that tick eradication will not win the most complete success, and that through tick eradication the South will become the live-stock section that it should be by reason of its climate and other natural advantages.

This Year "Worst for Tick"

"The achievements of past years, however, now are history. We have met here to plan the 1919 campaign. My notion of what should be done this year, what must be done, and what will be done, is this:

"Make 1919 the worst year for the tick.

"It can be done. There are no cant's in this fight. Tick eradication is well past the half-way mark and it is at high tide. Unscrupulous politicians who formerly waved the dipping vat as a red flag are now finding that the dipping vat is a mighty good band wagon to climb on. Cattlemen who still oppose tick eradication are learning every day that their attitude is taking money out of their pockets. They, too, are climbing on the band wagon. I do not know of a leading man in any community who is against the campaign that has been proved beneficial by practical results in dollars and cents.

South Tick Free in 1923

"With the new State-wide compulsory dipping law in Texas, which becomes effective in the last zone of that State in 1922, it is not beyond reason to hope that the Federal quarantine can be entirely lifted from American territory at the end of 1923. We may regard 'A tick-free South in 1923' as our aim. But to realize that aim remember that the area still under quarantine is 270,036 square miles. The campaign must not be allowed to lag in any year, and we should start off this year by setting up another record. Judging by what has been done in 1917 and 1918 I believe we can set the pace by cleaning up more than 90,000 square miles in 1919. That will 'make 1919 the worst year for the tick.'"

"DIP THAT TICK IN MARCH"

Federal and State Forces Concentrate on Killing Cattle Parasite When it is Young

The cattle-tick eradication forces of the United States Department of Agriculture and the cooperating State agencies are starting out this year to do a number of things, among which is driving the cattle parasite from a larger number of square miles than ever were cleaned out in any previous year. As one way of bringing that result they have adopted and intend to follow the slogan:

"Kill that seed tick in March!"

There is only one effective way of killing the tick. That is told in a poster, soon to be placed in every tick-infested region, and saying in letters that even a tick might read:

"Dip that tick in March!"

The reason for killing the seed tick in March is amazingly simple. Two ticks in March, allowed to live and prosper, means thousands, at least, in June, and millions soon afterward. Therefore, a tick killed in March means thousands less in June, and millions less in late summer.

Consequently, the dipping vats are going to get in action this year earlier than usual.

The seed ticks, hatched from the eggs laid the previous fall, begin to get active when the warm days come in March. If allowed to live, they suck cattle blood until they are full grown. Then the adult female tick, having gorged herself on cattle blood and transformed it into eggs, lays thousands of eggs which develop into

seed ticks. This is repeated over and over.

One female tick, shortly after she herself has left the egg stage, becomes able to lay from 3,000 to 5,000 eggs at one sitting. These eggs hatch into seed ticks, and each female, in her turn, lays from 3,000 to 5,000 eggs. So it goes on. Is it any wonder that a tick allowed to live means millions later?

"Don't share your milk, butter, and beef," say the antitick fighters, "with the many thousands of cattle ticks that spring from one seed tick if it is allowed to mature. One-third of your beef, milk, and butter will be wasted if you don't kill that seed tick early."

"The early start stops the tick!"

"Dip that tick in March!"

Uniform Inspections From Federal Dairy Score Card

Fourteen years of experience with dairy-farm score cards enabled specialists of the United States Department of Agriculture to announce developments which have an important bearing on the Nation's milk supply. More uniform and efficient inspection, accompanied with better sanitary conditions, are the principal results in localities where the official score card has been used. In addition there has been among dairymen a marked tendency toward friendly rivalry for higher ratings. It is believed that the score card is likewise of direct value to dairymen through the confidence which consumers have in a systematically inspected milk supply.

In the early development of dairy-farm inspection, milk-control officials visited the dairies, made comments and took notes for future reference, but there was no system of comparison between dairies and no specific basis from which producers of milk could measure their own progress toward better sanitation. Today the dairy-farm score card of the Bureau of Animal Industry is used in inspections carried on by 240 cities, 25 State departments, and 50 educational institutions.

An additional factor in obtaining uniformity in dairy inspection is the frequent interchange of experience between the United States Department of Agriculture and local officials. The department furnishes a monthly letter on timely topics, including outlines of Federal policies, to health officers of the country. This information is especially helpful in maintaining a proper distribution of effort between dairy-farm inspection and laboratory methods of control.

CEREALS BALANCE ALL OTHER CROPS IN VALUE AT FARMS

Bureau of Crop Estimates Places Their Worth at $7,079,000,000

Vegetables Fluctuate Widely But Show Gain in Relative Importance; "Wood Lot" Also is Going Up

Fully one-half the total value of all farm crops in 1918 at the farm, according to the Bureau of Crop Estimates of the United States Department of Agriculture, is found in the cereals, the crop total being $14,222,000,000 and the cereal total $7,079,000,000. The group next below in value is that of the fiber crops, cotton and hemp, but the latter is insignificant. Including cotton seed, these two crops have a value of $1,946,000,000, or 14 per cent of the aggregate of all crops.

The census items of hay and forage crops make a total value of $1,884,000,000 for 1918, or 13 per cent of all crops, but these items do not adequately cover the value of straw and corn stover and do not include pasturage, the value of which may now be roughly estimated at $1,000,000,000—more than one-half as much as that of the hay crop. If pasturage is included, the value of the hay and forage of 1918 must be nearly $3,000,000,000—one-fifth of the crop total.

Vegetables Gaining

Vegetables, subject to high variability in production and price from year to year, nevertheless appear to be gaining in relative importance. Their value in 1909, the latest census year, was 7.6 per cent of that of all crops, and in 1918 it was 9 per cent, or $1,246,000,000. The same is true of fruits, the value of which has become $638,000,000, or 4.5 per cent, in place of the 3.1 per cent of 1909.

Tobacco has the highest value in history for the crop of 1918, and this reaches the estimate of $374,000,000, or 2.6 per cent of the crop total.

The high prices of lumber and other forest products have raised the farm value of the year's products of "the farmer's wood lot" to considerable proportions. A rough estimate for 1918 computes a value of $366,000,000, or 2.5 per cent of all crops.

Value of "Seed Crops"

The group called "seed crops" in the census arrangement includes beans and peanuts as well as various other seeds. For 1918 the value of this class of products is $348,000,000, as estimated, and this is 2.4 per cent of the crop total.

In the value of the sugar crops, no beet or cane sugar is included, but only the beets and the sugar cane. Other items are sorghum cane sold and sirup made and maple sugar and sirup. The total is $137,000,000, of which $94,000,000 represents sugar beets and sugar cane, and this compares with the value at the factory of the 1,007,050 short tons of beet and cane sugar of 1918, which may be $177,000,000, more or less.

Ditch Banks Provide Pasture; One Farmer Gets Big Returns

The Bingham County (Idaho) Farm Bureau has urged every farmer, during the past year, to utilize all irrigation ditch banks. On irrigated farms of from 80 to 160 acres it has been estimated that the ditches take up from 3 to 12 acres. This not only reduces the cultivated area but is frequently a source of much trouble and financial loss, inasmuch as the farm ditches are likely to become a mass of sweet clover, willows, and weeds, and the natural breeding place of injurious insects, such as alfalfa weevils, false chinch bugs, and grasshoppers.

One man has made his ditch bank pay well. He has an 80-acre farm, through which there is a ditch 1,364 feet long and 10 feet wide. In 1917 the ditch bank and an adjoining strip of alfalfa embracing 1½ acres were fenced off and used to pasture a number of registered Hampshire ewes and lambs, the sheep being run on it on alternate two weeks. The actual pasture area of the ditch bank and alfalfa patch was 4⅓ acres. The result of the first year showed that this pasture would carry 129 head of sheep each alternate two weeks, or an average of 14 head pasture continuously.

In August 43 lambs, weighing a total of 2,178.5 pounds or an average of 50.7 pounds per head, were turned on one-third acre of this ditch bank pasture, which had been cut off with a temporary fence. The pasture at that time consisted of a rank growth of blue grass, white clover, willows, and weeds. The 43 lambs were held on this area for 15 days and harvested the growth rather than pastured it. The result showed the lambs gained at the rate of 264.5 pounds per acre pastured, which at 14 cents a pound would amount to a return of $37.05 an acre.

No more labor was required in building the temporary fence than it would have required to cut the willows and weeds. In addition to the profit returned the lambs did an excellent job in cleaning up the ditch banks.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

Agent Wins Over Authorities To Work in Louisiana Parish

When the agricultural agent in Bienville Parish, La., took up his duties in the fall of 1917, he found that the farmers were unorganized and were not in favor of farm-demonstration work. His first task was to establish some organization through which he could work. He decided this could be done most readily through cooperative buying and selling agencies.

The farmers needed corn, and the agent succeeded in interesting a sufficient number to buy one carload cooperatively. This purchase was so successful that later 21 cars of corn, 10 cars of oats, and 3 of hay were purchased under the same plan.

The agent also interested hog raisers in cooperative selling. He collected a carload of hogs from a number of farmers and sold them at a net gain of more than 6 cents a pound over the local market price. This was followed by another carload shipment.

Farmers then began to see the value of cooperation, and the agent was successful in establishing organizations in 14 communities. Through these he is holding demonstrations and teaching better methods of farming. He has held 10 terracing demonstrations, as a result of which 20,540 yards of hitherto untillable soil have been terraced; 10 orchard demonstrations, where proper orchard inspection and spraying were recommended; and demonstrations on 50 herds of hogs, containing 1,000 head, where the methods of vaccination against hog cholera were shown.

Evidence that the agent's work is being appreciated is shown by the fact that when he took his place the parish police jury refused to make an appropriation for demonstration work, but last March reversed this action and assigned $600 to help pay his salary.

OREGON FARMERS LEARN WHAT WAS WRONG WITH CHERRIES

When the Wasco County (Oreg.) farm bureau secured a county agent in 1916, there were 40,000 cherry trees in the county which had been bearing only 15 per cent of a normal crop during the past few years. A full crop would be valued at $250,000, while the growers had been getting only $50,000 for their fruit.

No sooner had the county agent become established than a committee of cherry growers visited him in his office and placed their problems before him. They explained there were varying opinions locally as to the reason for the nonsetting of the fruit after profuse blossoming in the spring. Such matters as frost prevalence, lack of irrigation, and poor cultural methods were variously attributed to be the cause. The county agent, who was a gradute in horticulture from the Oregon Agricultural College, investigated the problem and arrived at the conclusion that the reason for the failure of the thousands of Bing, Lambert, and Royal Anne trees to bear was due to the lack of pollenization. He had studied some experimental work in which the pollenization of Royal Annes and Bings had been successfully effected by flowering shoots of the Waterhouse variety.

The county agent placed demonstrators in the various communities and obtained Waterhouse scions for top working every sixteenth tree in the orchards of the community demonstrators. The local chamber of commerce took an interest in the matter and secured scions for a thousand trees to be treated under the observation of the county agent. A squad of upperclassmen from the State argicultural college were sent to the county to perform the grafting operations. Similar work was done in budding.

During the past two seasons the demonstrations of cross pollenization from grafting the Waterhouse scions have been so successful that 90 per cent of the owners of the 40,000 cherry trees in the county are now using pollenators. News of this work has reached other cherry-growing districts and farmers and scientists alike have journeyed from neighboring States to observe the results. Excursions of growers from the Yakima Valley in Washington and the Willamette Valley in Oregon have been held and the lesson demonstrated in Wasco County has not only benefited local orchardists but those of neighboring districts.

Ohio Farmers Work Together In Thrashing and Silo Filling

At a county meeting of the farm bureau of Trumbull County, Ohio, to secure cooperation of thrasher men in special grain and labor-saving practices, a compromise price for thrashing service was agreed upon between the thrasher men and the farmers. It was understood that farmers wherever possible would organize thrashing rings. To accomplish this, meetings were held in 13 townships, and those present divided the township into convenient districts of 10 to 14 farmers. For each of these a chairman was selected to call together the men of his district and perfect plans for the encouragement of thrashing outfits and exchange of service.

Delay in thrashing and silo filling and consequent waste and disadvantage, with increasing shortage of available thrashing outfits, had convinced them of the necessity of such measures, and 42 thrashing rings were formed.

NORTH DAKOTA COUNTY STARTS RIGHT IN SHEEP PRODUCTION

In Cavalier County, N. Dak., 125 farmers have been started in the sheep business through the influence of the county agent and farm bureau. This program of work covered two years, and was closely followed up by the county agent.

In the fall of 1916 the sentiment in this county seemed to have reached the point that a start could be made to induce farmers who had not previously been raising sheep to start a small flock of breeding ewes. At this time there were but a few flocks in the county, and the owners did not care to sell. It was a question, therefore, of going outside of the county to secure foundation stock. Agreements for the cooperative purchase of stock were drawn up, and 46 farmers ordered 486 head from St. Paul, Minn. Because of unusual market conditions it so happened that the wool from these ewes was sheared the following summer, paying the cost price of the entire lot.

During the fall of 1917 similar propaganda was started, and as a result 852

head of breeding ewes were brought in and distributed among 81 farmers. Five farmers, as a strictly breeding proposition, brought in 920 head of breeding ewes and wethers. These were secured in western Montana and were very high grade two-year-old Hampshires.

As a direct result of a large farmers' meeting held in January, 1918, a county wool growers' association was formed with a charter membership of 75 sheep men. The object of this organization is to assist in the cooperative sale of wool, sale of surplus stock, exchange and purchase of sires and breeding stock, cooperative purchase of shearing and dipping supplies, and the dissemination of educational propaganda. The association purchased such articles as wool sacks, wool twine, fleece tying boxes, sheep shears, and ear tags in quantities at a considerable saving. The services of 12 experienced sheep shearers were secured and routes were arranged for them.

The association purchased a large quantity of a well-known and excellent dipping powder and resold this to the members at a considerable saving. Six galvanized-iron dipping tanks were purchased by the association and placed among groups of members having small flocks. Arrangements were made also for several of the shearers to carry small dipping tanks with them.

The wool of the members was assembled at two points in the county and three carloads were shipped to a Government wool commission in Philadelphia. Wool in these shipments came from 182 farmers, who joined the association to get the benefits of cooperative selling and other advantages.

The industry at present has a general start over the entire county. The start has been made in breeds best adapted to the climate and feeds and to the practices in sheep production which have proven successful in this county.

AGENT'S WORK BEARS FRUIT

Better Orchards in Tennessee Result from Pruning and Spraying

To work himself out of a job is what at least one county agent of Tennessee frankly admits is his aim. If this agent interests many of the farmers in his county to the extent that he did a fruit grower in his locality he will be well on the road to accomplish his purpose.

Over a year ago, the Tennessee agent reports, he visited an orchard owner who wanted information on how to care for his trees so they would be productive and profitable. The agent went over the orchard with the owner, pruned several trees, showed him how to spray, and explained many points in orchard management.

On a recent visit to the fruit grower the agent found that the orchard had been cared for in every detail as he had suggested. But the owner had not stopped with his own orchard. He had been busy showing his neighbors how to prune and spray their trees. Home orchards throughout the entire locality are now being given better care.

Iowa County Learns How to Be Sure of Plenty of Seed Corn

Farmers in Sioux County, Iowa, will have plenty of good seed corn when planting time comes this year, for they have profited by their experience of a year ago. Last spring when they began to think of planting corn they found there was only about half enough dependable seed available.

The county agent was called to the aid of the corn growers. He located 18,533 bushels of old corn in the district, and got 1,332 farmers busy with seed-corn testers. As a result 13,262 bushels of old corn were tested, from which 9,900 bushels were found to be good enough for seed. The county agent followed up this campaign to secure good seed corn with one for the field selection of corn in the fall.

More than 2,000 farmers in the county selected their corn from the growing stalks last year and 1,323 gathered enough to last for two years.

How Farm Accounting is Taught In One-Day Extensio Schools

An effective one-day farm-management extension plan has been developed in the corn belt. The farm advisers advertise this work by requesting the men who wish to register for the day to write them immediately. The attendance for any single day is restricted to less than 30 men. The men are kept busy reviewing their farm business records for 5 or 6 hours. Those who register come for the purpose of getting all they can from the work. The day's work includes:

A discussion of the principles of farm management and farm accounting to indicate what the day's work will cover; then each man is given a blank account book. A typical record is given to be worked out by the same steps a man must take in keeping a record. The first step is to enter the inventory at the beginning of the year; the next, to enter all cash expenses and receipts. Usual errors found in farm bookkeeping are illustrated, and entries made to show how they may be corrected. The inventory is later entered for the end of the year, taking into account the methods of handling depreciations. The farm account is summarized. The taxable income is determined. The farm account is analyzed to show at what points the organization of the farm can be strengthened. The leader devotes considerable time to an analysis of the farm business and the value of farm records and of cost accounting. Finally each man is assisted in starting his own record book for the new year.

There is evidence that farmers in this area are beginning to appreciate the value of a farm record. Several farmers in Minnesota have written to the extension department commenting upon the work for the past year. The following is a typical letter:

"I got an account book at the short course two years ago and am surprised to find out how much a farmer can learn about his own business by keeping such a simple and easy system of records."

Terracing Makes More Land, More Crops, More Live Stock

Making available more land to cultivate crops by terracing idle hillsides, securing seed with which to plant this land, and assisting in bringing in the best pure-bred cattle with which to feed the resulting crops, has been a part of the well-rounded program of the agricultural agent of Grant Parish, La.

By conducting demonstrations the agent interested landowners in terracing hillsides, with the result that more than 60,000 feet of land on 18 farms have been terraced and made available for cultivation. Through the cooperative purchase, supervised by the agent, of seed potatoes, corn and other seeds, as well as fertilizers, about 120 farmers in the parish were able to save several hundred dollars. The agent then turned his attention to bringing in better stock and not long ago a carload of pure-bred Angus cattle were shipped into the parish.

There is no veterinarian in the parish, and this has added to the duties of the agent. He has vaccinated 520 hogs with antihog-cholera serum and has placed orders for sufficient serum to vaccinate twice this number. He has also administered treatment to a large number of animals suffering from other diseases and ailments.

COUNTY TEAMWORK COUNTS; WISCONSIN INSTANCE SHOWS

Agricultural and School Superintendent Were "Hitched Together"

Surveys by School Children Informed Residents of Community Facts They Had Not Known Before

"If 400 other farmers in this county can have running water in their homes, I know there is not a man here who can not do as much."

The superintendent of schools of a Wisconsin county had been called upon to say "a few words" at a little community fair which the busy school-teacher had found time to plan. And in some mysterious manner she had coaxed not only her entire roll of children to be on hand, but, as well, several families, healthy and prosperous looking farmers with their wives.

Instead of the usual "did-not-expect-to-be-called-upon" talk, the superintendent, who was also the emergency food agent for the county, surprised these farmers by telling them about as many or more facts about their district as they thought they already knew.

Tells Them Some News

"Just yesterday I learned some very interesting things about this district," said the county's hired man to the farmers, after a few much-deserved words of praise for the teacher and her school. "From the school survey of the county, just turned into the office up at the courthouse, I find that although there is not a district in the county in which a larger percentage of the farmers own automobiles, and in none are more of the farms equipped with farm labor-saving devices, yet there is not a home in this district supplied with running water.

"Yes, I know just what you men are thinking," he quickly added, as he saw signs of disagreement on some of their faces. "I am going to be bold enough to tell you that you are all wrong. If you will take the pains to visit some of the farm homes already equipped, you will be pleasantly surprised to learn that it will not cost you nearly as much, nor will one of these plants be as hard to install as you have supposed."

There was a look of appreciation in the faces of those women in that crowded little schoolhouse, and from the sympathetic questions asked by some of the men, it seemed certain that it would not be long before the much-worn water pails would be turned to other uses in several homes.

How He Got Facts

Although keenly interested in the practical results of that short talk, there was even more interest in the plan followed by this superintendent and his teachers, by the county agent and his committee of young farm folk, in getting the facts which he had put to such good use with these prosperous prairie farmers. After the meeting he was sought out and "pinned down" until he told about his plan.

"It all came about in a very peculiar way," he explained. "The university issued a bulletin on alfalfa growing, in which was given an estimate based on assessors' reports of the number of acres of alfalfa grown in each county of the State.

"When we saw that our county was credited with less than 50 acres of this wonderful legume our 'spunk was up.' We decided, then and there, to ask the school children of the county to take an alfalfa census of their districts, and the happy thought struck us that at the same time we might just as well have the pupils learn other interesting and important things about their home communities.

"From the first survey taken in 1912, we learned that there were in our county 440 silos, 27 creameries, 35 cheese factories, and instead of 40 acres of alfalfa, 750 acres were being grown by 250 of our farmers. As a side-line our survey showed that there were 20 milk testers in use in Sauk County schools, and that 100 schools had made ear tests of seed corn in connection with their work in agriculture.

"The surveys of the next year showed 24 creameries, 29 cheese factories, 39 milk testers in schools, 530 silos, 850 acres of alfalfa on 325 farms, 391 rented farms, 92 herds of pure-bred cattle, 404 automobiles owned by farmers, 32 rural social organizations, 68 electric and 78 gas lighted farm homes, 227 bathrooms, 270 kitchens supplied with running water, and 635 farm homes with pianos.

"The survey idea has worked so well with us that now we require every pupil to chart and survey his or her district before receiving the district school diploma.

"The pupils are unconsciously learning geography, civics, history, and agriculture. By these surveys excellencies are emphasized and attention is called to deficiencies in the district. School children are swift carriers of information. During the school-district survey the farm community at large will learn valuable things about itself never known before. A record of progress with all the subtle stimulus of constant self-measurement will become established. Moreover, the individual virtues of pride, desire for success, and the like, will be set fighting the battle of social improvement.

Get Acquainted with County

"Important facts may be collected from each school district survey, such as the number of silos in use or the number of acres of alfalfa grown, how many herds of cattle are headed by pure-bred sires, the different kinds of power appliances used by the farm housewives, what modern conveniences are to be found in the homes. Through the county agents and superintendent's public addresses in the county, by bulletins and reports from the farm bureau office, by county maps embodying special features of each years' set of school-district surveys, the people of the county will come to know their own county more intimately."

After serving his county for 12 years, this superintendent has resigned to engage more actively in county-agent work. A few days ago when called before the county board to tell whether or not his county needed a county agent, he confessed: "Ever since I have been working for you, I have been doing much which might properly be regarded as county-agent work. It was the biggest thing I could do. There is every reason for you to employ a county agent and there should be the closest teamwork between the county agent and the county superintendent. County teamwork counts."

A COUNTY'S PROGRESS TOWARD BETTER FARMING.

School children in a Wisconsin county have been making yearly surveys of the county to show its progress in farm betterment. This is what they found in the county in 1918: That of the 3,412 farms in the county, 398 were rented; that there were 1,234 silos; 864 acres of alfalfa; 1,878 farm-owned automobiles; 127 milking machines; 903 incubators; 97 tractors; 139 fruit-spraying outfits; 19 creameries; 28 cheese factories; that 320 farm homes were supplied with bathrooms; 918 had pianos; 398 were lighted with electricity and 122 with acetylene; 498 had running water in the kitchen; 407 were supplied with power washing machines; 850 had screened porches and 129 had sleeping porches; 1,651 farm homes were supplied with daily newspapers; 1,516 subscribed to current magazines; and 2,126 had farm papers.

ARSENIC EFFECTIVE POISON FOR KILLING SURPLUS TREES

Australian Formula to Stop Sprouting Found to Be Excellent

Winter, When Timber is Dormant, Best Season for Operation; How to Cut Tree and Use Preparation

In clearing up pasture land or clearing new land for crops it is often desirable to kill trees by some method surer and quicker than the old-time method of girdling. In dealing with the kinds of trees which sprout from the stump, such as the oaks, hickories, and red gum, a reliable method of killing is especially needed.

For the purpose of poisoning trees, arsenic has been successfully used in both this and other countries, often killing trees in a few weeks or a few days which by the simple girdling process would require months. Useful directions for making up a poison solution for quick and effective work in all kinds of timber, together with the method of application are given below, quoted from a recent number of the Australia Forestry Journal. In Australia, it appears, much investigation has been carried on, and this method has been widely used with excellent results.

Formula Found Good

Following is the formula:

Arsenic, 1 pound.
Washing soda, 1 pound, or caustic soda, ½ pound.
Whiting, ½ pound.
Water, 4 gallons.

Since the ordinary white arsenious oxide of commerce is not soluble in water to any great degree, soda has to be used for the purpose. When large amounts of the poison are desired washing soda will be cheaper, but for small amounts caustic soda will perhaps be found the handiest.

To prepare the solution, first dissolve the soda (either form) in a convenient amount of water, using heat, if desirable, to assist and hasten it; then slowly add the arsenic, previously made into a thin paste (as the housewife treats her cornflour), stirring all the time; place on a strong fire, and after it has come to the boil, allow it to remain boiling for at least half an hour; stir from time to time, and be careful to stand on the side away from the fumes, as, being poisonous, they are apt to cause sickness. When the arsenic is thoroughly dissolved, the solution may be made up to the required bulk by adding the remainder of the water, either hot or cold. The whiting is added merely to serve as an indicator of the trees treated as it turns white on drying.

Winter Best Season

The best time for carrying on the operation of poisoning is when the tree is dormant, or during the winter months. This will most surely prevent suckering, although trees can be killed practically any time of the year.

In applying the poison, the tree is first girdled by a series of heavy downward strokes of the ax through the bark and well into the wood, leaving the chips protruding outward in a "frill" extending completely around the tree. It is necessary that this "frilling" process be thoroughly done, which alone would ordinarily kill the tree after some time. A half pint for small trees to a quart for very large trees of the poison is then poured into the chipped surface, taking care to saturate the wood thoroughly. An old teapot or kettle with a spout serves well the purpose of pouring without needless waste or spilling down the tree. Suplings may be cut off low down and the poison applied over the stump by a swab stick. If this is done when the sap is down the tree will be completely killed and suckering prevented.

ALL PUBLICATIONS LISTED

A complete list of the publications that have been issued by the United States Department of Agriculture and those now available for distribution has been revised to July 1, 1918, and published in circular form by the department. Farmers' bulletins, department bulletins, circulars, separate reprints from yearbooks, and reports are listed together in alphabetical order.

The circular states that no publications are sold by the Department of Agriculture, but copies will be sent free upon application to the Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts. When the department supply is exhausted publications can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by purchase only.

The list of publications includes those that can be obtained free from the department as well as those which can be purchased from the Superintendent of Documents.

Don't Pay Poor-Cow Tax; Better Bulls, County's Slogan

"Don't pay two taxes" is the timely slogan of the Door County (Wis.) Live Stock Committee.

Few farmers realize that they are paying in addition to their regular tax a "poor-cow tax." This "poor-cow tax" is about the heaviest, robs the pocketbook, and profits no one.

"You have just paid your annual property tax. This is necessary to provide for our schools, roads, and other government expenses from which you benefit, but why pay two taxes," is the appeal which, in the shape of a little card, is being placed in the hands of Door County owners of scrub sires. And the "prospect" who wants to be shown is pointed to results which were worked out in a farm management survey, where it was found that on 124 farms with pure-bred sires the average net profits were $1,102; on 466 farms with grade sires the profits averaged $734, and on 83 farms with scrub sires there was an annual loss averaging $234.

The scrub sires on these farms were responsible for at least part of the good or bad showing. A poor bull is an extravagance which Door County farmers can not afford. "Watch us grow a reputation" is the enthusiastic parting challenge of the committee which is boosting better bulls in this peninsular county.

Practically every farmers' organization of the county—Grange, the Society of Equity, the Association of Guernsey Men, the Holstein Cattle Club—is cooperating in the better-bull campaign.

What in reality amounts to a farm bureau—a committee made up of a representative from each township and with the county agent as managing director—is directly responsible for the county's drive to replace the grade and scrub bulls with good pure-breds.

"To keep its lead in dairying and livestock raising Wisconsin must discard its scrub sires," said the executive committee of county agents and representatives of all of the State's cattle breeders' associations.

"Count on Door County to help," said this live live-stock committee. "Although somewhat off to one side, the Door Peninsula is still on your map, and we are going to stay there. In one of our townships, which happens to be an island 6 miles out into Lake Michigan, each man contracted more than a year ago to use only pure-bred bulls and every one agreed to stay by but one breed."

And by means of this same kind of teamwork the other townships of the county are promising to follow suit.

"The entire county is going to wage war on the scrub—only upon a much more extensive scale." The county agent spoke as if he represented men who meant business.

"The committee is out to give their county a reputation for the production of as high-class cattle as it already has for Montmorency and Early Richmond cherries."

South Must Subdue Sweet-Potato Weevil; Quarantines Are Advised Against Insect

Unless rigid control methods are practiced to prevent the spread of the sweet-potato weevil in the Gulf States, America's sweet potato industry may be seriously jeopardized according to specialists of the United States Department of Agriculture. Last year $3,500,000 worth of sweet potatoes of the Gulf country were destroyed by the weevil. Texas, Louisiana, and Florida growers suffered the heaviest losses, while in other sections of the South the crop was damaged 25 to 50 per cent.

Federal entomologists, in a publication just issued, Farmers' Bulletin 1020, "The Sweet-Potato Weevil and Its Control," discuss the history and control of this insect, laying particular stress on the advisability of quarantines of the infested sections. They outline an effective system of eradication which, if rigidly followed, will be very beneficial in protecting our second most valuable vegetable crop, the 1918 sweet-potato crop having been valued at $116,000,000.

The sweet-potato weevil, a small snout-beetle, red and blue in color and antlike in appearance, bears the same relation to sweet-potato production that the boll weevil does to cotton. The female weevil lays her eggs in the vines, and in the stalks or crowns near the ground, and also on the roots in the field and in store, continuing to work and breed in the roots in storage. The larvæ, on hatching, tunnel through the vines to the roots, the vines die and frequently the roots become badly riddled and filled with excreta, giving them such a bitter taste that even swine will not eat them. Present knowledge indicates that the pest is spread mainly by the commercial movement of the sweet-potato crop, as the weevil, although winged, travels very slowly in spreading infestation.

Often Active During Winter

Unless restricted by low temperatures, the weevils are fairly active during the winter, feeding with avidity on the stored roots, reports the Department of Agriculture. When the young slips begin to appear in the seed bed, the weevils feed on the stalks and leaves, while later on, when the stalks reach sufficient size and begin to get woody, the weevil lays her eggs on the roots of the plants just below the earth line. When the potatoes develop the larvae eat and burrow their way through the tubers and finally rest in burrows about one-quarter of an inch beneath the surface, and there transform to pupae and ultimately emerge from the tubers as adults. Often in storage the tubers become very dry and imprison the larvae, which die in their burrows.

Control is Difficult

So far as is known the sweet-potato weevil has no natural enemies. Its control would be comparatively simple through extensive quarantines in the producing sections were it not that the pest also breeds on morning-glory and bindweed. Control measures include the cleaning up of all old sweet-potato fields by destroying all the vines, stems, tubers, and other remnants. Then the ground should be deeply plowed or harrowed and kept free from volunteer sweet-potato and morning-glory vines.

All sweet potatoes should be gathered and divided in the field into three lots: (1) Weevil-free tubers, (2) roots slightly infested for fumigation, (3) roots badly infested. The third class, or culls, with all remnants of an unsalable nature, should be gathered and fed to hogs, cattle, or poultry after cooking them to insure that no weevil may escape to extend the infestation. If the potaoes are unfit for feeding to live stock, they should be burned with the aid of straw, dried weeds, paper, or oil.

Crop rotation is an effective control measure. Indeed, injury to a large extent is preventable where care is used in the selection of the potato field for future planting. The new field should be as far as possible from old sweet-potato fields which have been infested, and, if possible, should be separated from it by a natural barrier, such as a strip of woodland or such a crop as corn, tobacco, or Irish potatoes. The new crop should also be planted at a distance from the seed bed. One grower reports a decrease from 75 to 5 per cent annually in his sweet-potato loss since he has practiced this method.

Value of Fumigation

Potatoes which are not too badly infested may be fumigated to advantage where they are intended for early consumption. Carbon disulphid has been successfully used for this purpose. Under unfavorable conditions, however, fumigated roots may fail to germinate or sprout or may become subject to rapid and complete decay. This occurs especially where the tubers show a high moisture content.

Before sweet-potato plants are set out in the spring, it is advisable to dip them in a solution of 1 pound of lead arsenate dissolved in 10 gallons of water. Spray the plants with arsenicals for the first appearing weevils on leaves and stems. Construct all storage pits at points remote from the sweet-potato field. They should be kept as dry as possible and should be so constructed as to allow for fumigation and to permit of inspection from time to time for weevil attack. All farmers of a section should cooperate in the eradication of the sweet-potato weevil, as such work is for the common good of the community. In fact, to accomplish effective and permanent results combined community effort is necessary.

The precise value of the use of arsenicals as a spray against this weevil remains to be ascertained from experiments now in progress.

All the States in which the sweet-potato weevil occurs have adequate crop-pest laws which permit the establishment of both interstate and intercounty quarantines against this pest. Close cooperation with State and Federal authorities will be advantageous to growers in reducing losses from weevil attack. It is especially urged that commercial plant growers provide certificates of inspection for weevils when shipping plants or seed potatoes for planting, and that all growers who purchase planting stock insist that a certificate of inspection be furnished as this will aid enforcement of the quarantine laws.

IS YOUR ICE HOUSE FILLED?

Next summer, when the little heat waves are rising from the cornfield and everything is parched and dusty, you're going to be mighty sorry if there isn't any ice in the ice house. No ice cream; no cool drinks; and lots of sour milk returned to you. Well, it will be your own fault. You let the winter slip by without harvesting ice. Maybe you planned to do it when the next heavy freeze came. But it never came, and you lost your golden opportunity.

It's getting late now. Soon sap will be running and buds swelling. You can't afford to wait any longer. This is nature's "last call" for ice. Cut it even if it isn't very thick. If it's spongy or soft, put up more than you would ordinarily to allow for greater waste. Get busy. You've heard about that place that's paved with good intentions! Ice next summer depends upon prompt action NOW—not next week.

The care of the home orchard provides for spare time congenial and profitable occupation, which is in reality recreation for those who enjoy seeing things grow.

Two New Pink Bollworm Infestations Found in Texas; Department Fights Pest

Two new infestations of the pink bollworm of cotton have been found in Texas by representatives of the United States Department of Agriculture, and the work of eradication has been begun under the same system that so completely eliminated the worst known cotton pest from the infested areas around Trinity Bay, Beaumont, and Hearne in 1917.

The new infestations are not in the original quarantined districts but much farther west. One is on the upper Rio Grande, in the Great Bend district, where it was not thought cotton was grown. The other is around Barstow, in Ward County, on the Pecos River.

In exploring the Rio Grande for possible evidences of the pest representatives of the Department of Agriculture discovered that the high price of cotton had led to the establishment of a few fields, perhaps 400 acres altogether, in the little bottoms at the base of the mountains that come down to the river in the Great Bend. Some of the seed, apparently, was brought across from Mexico and a very slight infestation of the pink bollworm was found. There are no towns of any importance in that region, the customs service is very limited, and there has been little to prevent small-scale smuggling by which cotton seed from the Laguna may have reached the American side of the river.

Investigation has shown that some cotton smuggled across from Mexico, as well as some grown in the Great Bend, found its way to the oil mill at Barstow. Much of this, brought up in the fall of 1917, was not ginned until September of the following year and the insects had ample time to escape to near-by cotton fields. The infestation seems to be confined to a few fields immediately adjacent to the mill.

Despite its limited area, the infestation at Barstow is regarded as much more serious than the one in the Great Bend. Barstow is in the midst of cotton culture on a fairly large scale, while the Great Bend infestation is in a mountainous country where there are only a few small, isolated cotton patches.

The Department of Agriculture now has 12 men in the Pecos Valley, making a survey and beginning the eradication work. The situation there is regarded as practically the same as was that at Hearne, one of the areas in which a complete clean-up was made in 1917.

C. L. Marlatt, chairman of the Federal Horticultural Board, the branch of the Department of Agriculture which is charged with the pink bollworm eradication and quarantine work, recently told the Committee on Agriculture of the House of Representatives that survey, inspection, and clean-up work of this kind will have to be kept up along the Mexican border continuously unless an arrangement can be made by which the United States and Mexico can cooperate to eliminate the pink bollworm from the latter country.

ENTRY OF PLANTS RESTRICTED TO PROTECT AMERICAN CROPS

(*Continued from page 3.*)

these were added certain classes of plants, including bulbs and seeds, which could be safeguarded by inspection and disinfection.

The plants permitted entry represent a considerable proportion of foreign plants and seeds hitherto imported, but exclude the classes of plants, including all plants with earth, which are open to special danger of importing new pests. The excluded plants are largely ornamentals imported to be turned over at a quick profit, and, on the authority of the experts of the department and of leading plant growers, can be produced for the most part in sufficient quantities in this country.

Dangerous Bulbs Excluded

In the case of bulbs it was realized that a danger existed and the entry was restricted to classes of bulbs least subject to risk of bringing in new pests and which from their nature could be most readily inspected and determined as clean. The excluded bulbs involve the less important and miscellaneous importations coming from widely scattered sources and the entry of which is attended with greater risk of introduction of plant diseases and insect pests.

Disinfection by any known means is not possible in the case of most of the ornamental plants excluded, and particularly those which come with soil about the roots. No disinfection of soil is possible without destroying the plants, and, furthermore, many insects and practically all diseases are not capable of control by disinfection and are not disclosed by inspection. This condition, requiring removal of soil and holding in quarantine for considerable periods, as is done in case of departmental importations, precludes safeguarding of importations on a commercial scale.

Provision for Entry

Provision is made in the quarantine for the entry in limited quantities of the prohibited bulbs and other prohibited articles through the Office of Foreign Seed and Plant Introduction of this department, such entry being safeguarded by a highly developed inspection and quarantine service.

The necessity for the quarantine is shown by the failure of the only possible alternative of foreign and home inspection. The best service rendered under this plan reduces but does not eliminate the risk.

Holland has one of the best inspection services, yet 148 different insect pests have been detected from Holland, some of them in more than a thousand different shipments, in the last six years since the Holland service was instituted. The record from other principal exporting countries is similar. There is, furthermore, the special danger from importations from oriental countries where there is no adequate protective service and little is known of their plant enemies.

Danger in Unknown Pests

The number of known foreign pests awaiting entry to the United States is vastly larger than those which have already gained entrance, and the unknown foreign pest is an uncertain quantity, perhaps more dangerous than the known pests, officials point out.

The risk is illustrated by recent introductions—for example, the alfalfa weevil, the oriental peach moth, the Japanese beetle, and the citrus canker, together with such older importations as the San Jose scale, the brown-tail moth, the chestnut-blight disease and the white-pine blister rust.

Foreign pests introduced with imported plants are now costing the United States each year more than the total value of such importations since the founding of the Republic.

In the presence of important dangers to be guarded against, sentiment based on keen sympathy which all feel, especially for Belgium and France, is held to have no place. Furthermore, the action taken places the United States in more close alignment with, but still behind, the principal exporting European countries, which have long maintained practically complete prohibition of plants from the United States.

Department officials believe it is good common sense to stop these sources of

loss to American agriculture, and the combined judgment of the experts of the department and of the several States, coincided in by the bulk of the interests engaged in actual plant production, is that the policy of practical exclusion of all stock not absolutely essential to the horticultural, floricultural, and forestry needs of the United States is the only one that will give adequate protection to this country.

WATERED WHEAT VIOLATION OF FEDERAL FOOD LAW

All shipments of wheat and other grains found in interstate commerce to which moisture, weed seeds, or other screenings have been deliberately added, whether or not they are in conformity with Federal grain standards, are liable to seizure, say officials of the United States Department of Agriculture.

Adding water by artificial means to wheat or other grains which come within the jurisdiction of the Federal food and drugs act is a violation of that law, even though the moisture content of the grain, after the artificial addition, is within the limits set by Federal grain standards, according to a recent statement of the Bureau of Chemistry of the Department.

Information has come to the Bureau of Chemistry that some dealers are deliberately adding water, and in some cases a small percentage of screenings and foreign grains, to wheat in order to bring these substances up to the maximum limits allowed in the Federal grain standards. Federal inspectors are on the lookout for interstate shipments of grains adulterated in this manner. A number of seizures have been made in the past of oats and other grains adulterated with added water and screenings.

The Federal food and drugs act provides specifically that an article of food coming within its jurisdiction is adulterated if any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength, or if any substance is substituted for the article. The addition of water, weed seeds, or screenings to wheat or other grains, the department holds, necessarily reduces or lowers their quality or strength, and when such grains are shipped within the jurisdiction of the Federal food and drugs act they are in violation of that act, and subject to seizure.

A more general culture of fruit in gardens and in home orchards would contribute substantially to the health and pleasure of the average family, besides furnishing a supply of valuable food products at a relatively small outlay of money.

DIPPING RECOGNIZED METHOD IN CONTROLLING CATTLE SCAB

Contagious Skin Disease May Be Eradicated from Live Stock

Serious Losses in Weight and Vitality Charged to Minute Parasites; Proper Spraying Also Helps

Small insect-like parasites, commonly known as mites, are responsible for cattle scab, a contagious skin disease affecting cattle of all ages and conditions. There are several forms of the disease, known by such names as "scab," "mange," and "itch." Though the disease itself may not cause death directly, it is responsible for serious losses by causing a shrinkage in the weight of animals, failure of young stock to thrive and gain weight normally, and by increasing the death rate of poorly-nourished animals of poor vitality, especially range cattle exposed to inclement weather.

Cattle scab can be eradicated by dipping or spraying, dipping being the most reliable method, and lime-sulphur, nicotine, and crude petroleum dips can all be used with success. Methods of control and eradication of cattle scab, together with descriptions of the various forms of the disease, are given in Farmers' Bulletin 1017, recently published by the United States Department of Agriculture.

Disease Under Control

In the western part of the United States, especially where cattle graze on the open range, the losses caused by common scab have been a serious drawback to the live-stock industry, but through the cooperative work of the Bureau of Animal Industry of the United States Department of Agriculture and the officials of the States concerned the disease has been greatly reduced and brought under control. It has not, however, been entirely eradicated from the herds of the Western States, and it is important that control measures be practiced continually to completely eradicate the disease and prevent it from again becoming prevalent.

The mite which causes common cattle scab may attack any part of the body covered thickly with hair, but the first lesions usually occur on the withers, on top of the neck just in front of the withers, or around the root of the tail. From these points it spreads over the back and sides, and unless checked it may involve practically the entire body. The mites attack the skin to obtain food, and in so doing probably introduce a poisonous secretion, says the bulletin. A slight inflammation is caused, followed by intense itching. In the advanced stages of the disease large scabs are formed which frequently are stained with blood. The disease should never be allowed to reach this stage, however. In the early stages it yields readily to proper treatment, and heavy losses can be avoided only if the disease is taken in hand early.

Dipping Method Recommended

While cattle scab can be cured by spraying, if the work is done properly, this method is recommended only when the number of cattle to be treated is not large enough to justify the owner in providing a dipping vat. Dipping, however, which consists of immersing animals in a medicated liquid that will kill the parasites, is the only method recognized by the Bureau of Animal Industry in the official treatment of scabby cattle. All animals in the herd should be treated regardless of the number showing lesions of scab.

One dipping generally is sufficient for cattle which have been exposed to infection, but upon which the disease has not yet become apparent. Infected cattle require two or more dippings, according to the variety of the disease present. Complete directions for preparing dips and constructing dipping vats are given in the bulletin.

MILITARY NEEDS INCREASE USE OF WOOL IN 1918

Seven hundred and forty million pounds of wool, grease equivalent, were used by manufacturers in the United States during 1918. Much of this wool went into clothes for soldiers, while the old clothes man called in vain for the shiny and patched garments worn by civilians at home.

Military needs kept the monthly consumption of wool to an average of 65,500,000 pounds, grease equivalent, for the first 10 months of 1918, but in November it fell to 47,000,000, and in December to 38,300,000 pounds, as announced by the Bureau of Markets, United States Department of Agriculture.

Massachusetts mills used more wool in 1918 than any other four States combined. After Massachusetts in order came Pennsylvania, Rhode Island, New Jersey, New York, Connecticut, New Hampshire, Ohio, and Maine.

During May mills used 74,600,000 pounds of wool, grease equivalent, the largest monthly consumption reported, while March and April each showed more than 70,000,000 pounds used by manufacturers.

SIMPLE TREATMENT RENDERS SHORT-LIVED WOOD DURABLE

Preservatives for Fence Posts Recommended by Forestry Specialists

Timber Must Be Peeled and Thoroughly Seasoned Before Good Results Can Be Expected

The fence-post problem is easily solved on the farm by means of a simple method of treating wood with coal-tar creosote, according to an extension specialist in forestry of the United States Department of Agriculture. Sap pine, red oak, maple, beech, sycamore, black gum, sweet gum, and other abundant or inferior woods by this means are made durable in the ground for 10 to 20 years of service.

It is essential that the timber be peeled and thoroughly seasoned before attempting to treat it. Small flakes of inner bark left on the wood check or prevent proper absorption at those places. Peeling is done most easily during the spring months, but is carried on at other seasons of the year. A spade is about the best common implement for use when the bark slips easily, otherwise an axe or drawknife should be used.

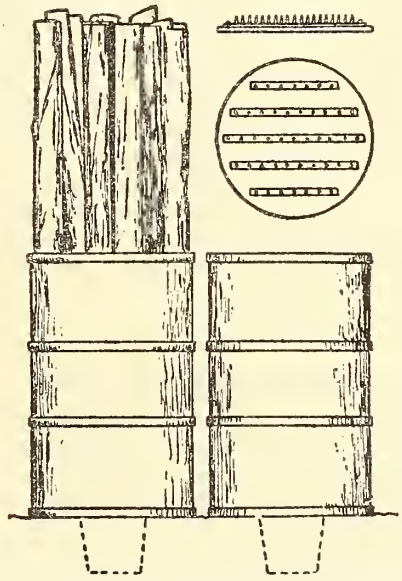
Because they have a uniform absorbing surface of sapwood, round sticks are more satisfactory than split timber. With treated timber it is not necessary to use the large-sized line posts commonly cut and used in the past. By using a post from 3 to 4 inches in top diameter and long enough to allow only a few inches above the top wire, the cost is reduced for creosote and for labor in handling, the post lasts practically as long as larger sizes, and it affords ample strength for the fence line. These facts have been fully established by means of experiments and demonstrations carried on for more than 10 years by the Forest Service, United States Department of Agriculture, in cooperation with a number of State Agricultural colleges in different parts of the country.

Preservative Should Penetrate

In treating the posts it is important to get a deep penetration of the preservative of from 1 to 2 inches in the butt of the post for a height of 1 foot above the ground level when the post is set in place. This is obtained by boiling the butt in creosote heated to about 210 degrees F. for one to two hours, depending upon the porosity of the wood, followed immediately by a bath in "cold" (80 degrees to 100 degrees F.) creosote for about the same period of time. The wood cells, expanded and deprived of some of the air by being heated, during the cooling treatment gradually absorb the desired amount of the creosote. The tops obviously require only a shallow treatment to last as long as the butts. Where only a single open drum or tank is used, top treatment may be accomplished by means of thoroughly painting the tops with a brush, or pouring hot creosote over the tops.

A very satisfactory outfit for treating posts consists of an upright cylindrical tank for the hot treatment and a horizontal rectangular tank or vat for the cold bath. For applying the hot creosote to the butts one of the large-sized gasoline or oil drums, about 27 inches in diameter, is very satisfactory for small operations, but for larger or cooperative treatment a cylindrical steel tank 3 feet in diameter by 4 feet in height should be used. In either case there will be needed a horizontal steel tank about 3 feet across by 3 feet in height and 8 feet in length, or large enough to accommodate the corner posts.

MAKING POSTS LAST LONGER.



Two oil drums can be used for treating posts; construction of false bottom shown in drawing at upper right.

The equipment, as well as the method of treatment, are described in detail in Farmers' Bulletin 744, "Preservative Treatment of Farm Timber."

Details of Equipment

A gasoline drum with one defective head to be chiseled out can often be obtained at a cost of $2 to $3. The tank for the hot treatment obviously must be of steel and in all cases fitted for heating either with a fire underneath in an earth pit or by means of steam pipes. Except in midsummer, some heat must be supplied to the cold tank. Where dressed lumber is relatively cheap, a satisfactory cold vat can often be made at less cost by being built up of dressed 2 by 4 pieces laid on a heavy flooring. It should be fitted for heating by means of an iron pipe circuit either extending over a fire on the ground or connected with a steam engine.

It is important to use a good preservative, and coal-tar creosote has proved by far the most satisfactory substance. Ordinary gas or coal tar has been occasionally used, but it is too thick, even when heated, to give a fair degree of penetration and leaches out more quickly than creosote.

Present prices of coal-tar creosote range mostly from 25 to 35 cents a gallon in barrel lots laid down at the nearest railroad point. The prewar price was about 15 to 20 cents a gallon. A gallon of creosote is sufficient to treat three posts from 3 to 4 inches at the top, or two posts from 4 to 5 inches in top diameter, thus making the cost from 10 to 15 cents per post, or in ordinary times from 5 to 10 cents. The other items would be the cost of cutting and peeling the posts at perhaps 5 cents each, the labor of treating, which can be figured at from 2 to 3 cents, and a share of the equipment cost, which would likely average about 2 cents each, using a 2-tank outfit. This makes a total cost of from 15 to 25 cents each.

Joint Ownership Saves

A saving in cost would be made by two or more farmers jointly owning and using a treating equipment. This method in a number of instances has proved a successful form of cooperation among farm owners.

Post timber for treating is very abundant in the dense old-field pine stands throughout the Southern States. The small trees which are being crowded out by the taller dominant trees are very often of just the right size for making treated fence posts. Cutting them for this purpose utilizes a forest product that would otherwise be wasted and improves the remaining stand by giving room for growth needed by the remaining trees. A wood with an interlocked and twisted fiber, such as black gum or sweet gum, is of the very best sort for treating, since it is little subject to the deep checking apt to occur in wood after 5 to 10 years of exposure in the weather. The "seeds" or spores of wood-decaying fungi find entrance through such cracks or checks and begin feeding on the wood cells. Thorough treatment of well-seasoned posts poisons the food of the fungus, thus giving many years of useful service.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Uncle Sam Sells His "Varmint" Skins.

The money a farmer gets for wild-animal skins is always a comparatively small sum, representing a decidedly minor side-line. But Uncle Sam received $96,000 last year as the price of the wild-animal skins he had taken during the year as a by-product of just one phase of his agricultural operations—the war against predatory animals on the range land of the West. The killing of the animals from which the skins were taken will result in the saving of millions of dollars worth of live stock to the sheep and cattle men of the range country. The predatory-animal extermination work is done by the Bureau of Biological Survey of the Department of Agriculture. Expert hunters and trappers are employed. The skins of all the animals they capture or kill must be sold and the money turned into the United States Treasury. Nor are the hunters or trappers permitted to accept bounties. But there is not the same temptation in that respect that there used to be, for since the Government hunters and trappers have been "on the job" their work has been so obviously successful that the States either already have done away with the old bounty system or are planning to do so. The money formerly paid out in bounties is being appropriated in many States for cooperative work with the Department of Agriculture, with manyfold better results as to number of predatory animals destroyed.

Test Strength of Fruit Baskets.

To make sure that the largest possible proportion of next season's shipments of tomatoes and peaches will reach the consumer in an undamaged condition, the Forest Service has been making some practical strength tests at the Forest Products Laboratory of a new six-basket crate for these perishable commodities. The tests are made at the request of the Bureau of Markets and the Fruit and Vegetable Growers' Association of the South and East. The crates, packed as though for shipment, are subjected to a series of drops and strains, such as might be experienced in actual transportation, to discover the weak feature of the design. It has been found that the crates themselves can stand more rough handling than the inner baskets, and an effort will be made, therefore, to provide means for holding the baskets more rigidly. By building up and testing various modifications of the original crate, it is hoped that in a short time a six-basket container can be produced which will be practically equally strong in all parts.

County Agents Help Sell Stock.

When farmers want to buy dairy cattle they consult their county agent, who, in turn, consults county agents in dairying sections where dairy cows can be purchased. When the county agents of Wisconsin made a summary of sales they had helped to make to buyers outside of the State they found a total of 350 carloads of dairy cattle, valued at $75,000, had been shipped in 18 months since July, 1917. In Winnebago County the records showed 448 dairy cows, valued at $47,000. In Sheboygan County the records showed more than 500 head, valued at $60,000. During this period buyers from 15 States came to Wisconsin to buy stock for farmers in their respective communities.

Will Continue Farmers' City Market.

A city market established last summer in Trenton by the farm bureau of Mercer County, N. J., was so successful that the plan is to be carried out this year on a more extensive scale. The county agent estimates last year's business of the market at $500,000 worth of farm products sold at wholesale and retail. Until last year Trenton had no market, and for 25 years farmers had backed their wagons up to the curb in the center of the business section of the city. Establishment of the markets resulted from cooperation between the county agent, the Bureau of Markets of the United States Department of Agriculture, and the city officials of Trenton.

Show How to Cull Poultry.

Vermont county agents conducted 131 poultry culling demonstrations, with a total attendance of 2,655 people during the fall of 1918. The flocks culled numbered 62, 2,620 birds being handled by the demonstrator and people in attendance. Of this number 1,081 birds, or 41 per cent, were discarded as "boarders." As a result of the campaign work 86 farmers went through their flocks, aggregating 7,454 birds, and culled 2,934, or 39.1 per cent. This result indicates the influence and immediate and definite benefits of such demonstrations.

Bring in Pure-Bred Dairy Cattle.

Through the assistance of the county agent and local banks, the farm bureau of New Castle County, Del., secured five carloads of pure-bred Holstein cows during 1918. The average cost a head was $260, f. o. b. Delaware. Two farmers accompanied the county agent to Michigan, where arrangements had been made with the Holstein-Friesian Association to secure the foundation stock. The Bureau of Animal Industry provided a man to administer the tuberculin test. The cows purchased were of such individuality and breeding that their offspring could readily be disposed of at good prices. Upon arrival the cows were exhibited for three days and the breeding of each animal posted. Meanwhile the farmers who had given their orders made remittances at the bank covering the actual cost of the cow received and the transportation cost. When desired, the bank made the farmers liberal terms of settlements.

Make Money in Lamb Sales.

Because there was a poor market for less than carload lots of lambs in Ada County, Idaho, an association was organized in August by a few members of the county farm bureau to handle them cooperatively. Forty-five sheep producers were in this organization and the first shipment consisted of 450 lambs. The price offered by the local dealers was $8 a hundredweight, but they would not handle more than a few at a time. The price received by the association was $14 a hundredweight net. This deal alone gave the farmers $2,700 more profit.

Iowa Goes Barberry Digging.

At least a half million common barberry bushes were found in nurseries and 150,000 more were located on private and public grounds in 300 Iowa cities and towns in the barberry eradication movement conducted in wheat-growing sections last summer by the United

States Department of Agriculture, cooperating with State Agricultural forces. The purpose of removing these bushes is to stamp out the black stem rust of wheat and other grains which has caused great losses, not only in Iowa but in the whole Middle West. Barberry is one of the means by which this rust is enabled to make an early attack in the spring. Without this host the rust will be practically eliminated. Although many bushes have been removed, there are still others in Iowa and throughout the Middle West which will be centers of a rust epidemic if they become infected, say department specialists.

County Uses Electric Corn Testers.

Farmers of Grant County, S. Dak., had enough good seed corn last spring largely because they brought in 250 bushels from outside the county and also because the county agent established electric testers with a total capacity of 7,300 samples. The agent installed in the farm bureau office an electric tester with a capacity of 3,600 ears, and 23 small testers holding 100 ears each. Two testing substations were established. A summary of the work shows that 67,000 ears were tested, composite tests were made of 4,000 bushels, and 308 farmers became sufficiently interested to test their own seed.

Shipping Association Successful.

A cooperative shipping association formed in August, 1918, by members of the farm bureau of Linn County, Oreg., has shipped 26 carloads of live stock from six towns. The saving has been 50 cents a hundred pounds, or $2,000 on the 26 carloads. The present membership is 177 farmers. The association, managed by an executive committee, employs a shipping manager who gets 10 cents a hundred pounds and his expenses on trips to market. The association ships for anyone, but retains 50 cents from nonmembers' first shipments as membership fees. Damages and loss of stock are paid from an insurance fund kept up by an assessment of 5 cents a head on sheep, 10 cents on hogs, and 15 cents on cattle. Shippers in each car apportion freight, yardage, commission, feed, and yard insurance charges on that particular car among themselves, according to the weights of their stock.

"Sulphur-Alfalfa" Club in Oregon.

As a result of 30 farm bureau demonstrations, seven carloads of flowers of sulphur, aggregating 300,000 pounds and constituting the largest cooperative order of sulphur ever assembled in Oregon, were shipped for fertilizing purposes on volcanic ash soil into the recently developed irrigated sections of Crook and Deschutes Counties. This shipment was secured for 183 farmers in the two counties of the district. Each farmer had previously joined a sulphur-alfalfa club, organized by the county agent, and in so doing had pledged himself to apply at least 500 pounds of sulphur to alfalfa at the rate of 100 pounds an acre. Because of the size of the order the farmers saved $3,500.

Market Exchange Shows Profit.

The farm bureaus of Providence and Bristol Counties, R. I., have established an exchange for marketing their produce, and for cooperative buying and selling. Before the first semi-annual meeting the exchange had done $15,000 worth of business and it had been found necessary to enlarge the establishment three times. A force of 15 people is kept to handle the sales. Eleven carloads of grain and feed have been secured for the farmers at a saving of from $1.50 to $11.50 a ton. Eight hundred tons of fertilizer also have been secured for spring use at a saving of $10 a ton. One farmer netted $523 more than the average price in the local market by selling his market-garden products through this exchange.

How Velvet Beans Help the Soil.

A striking illustration of the value of velvet beans—that popular southern crop—for fertilizing purposes is shown by a demonstration held by the agricultural agent of Jefferson Parish. In this demonstration the velvet beans made the difference between success and almost complete failure in growing cauliflower. The agent reports that the cauliflower plants on land where velvet beans had grown were four or five times larger and the stand more than 100 per cent better than on land where the beans had not grown. In St. Helena Parish the agricultural agent interested the club boys in growing velvet beans, and one of them grew 5,000 pounds of the beans in the hull on 1 acre. Several men in that parish picked from their corn and bean demonstration plots from 2,000 to 4,000 pounds of beans last fall. (From Louisiana State University Press Bulletin, January 16, 1919.)

Farmers Fighting Cattle Disease.

Blackleg is not going to cause any more cattle losses than the farmers of Lawrence County, Oreg., and Ada County, Idaho, can prevent. The farm bureaus of these two counties "mean business," according to their last year's work. In Ada County the farm bureau conducted 15 demonstrations of how to prepare and administer blackleg vaccine. At these demonstrations 123 persons attended and 1,367 calves were vaccinated. Vaccine was furnished free to all who attended the demonstrations and 8,000 calves were vaccinated twice during the year. Only five deaths due to blackleg were reported in this county in 1918, in comparison with 200 before the blackleg work started. In Lawrence County 14 per cent of the members of the farm bureau vaccinated their cattle. Their saving is figured at $17,463. The farm bureau officials gave out 4,705 doses of Government vaccine, the county agent gave 20 demonstrations, and farmers purchased 22 vaccinating outfits for cooperative use.

CANE SIRUP GREATLY GAINS

Sorghum, a "Come-Back," is Another Sweet with High Record

From ribbon cane, 36,730,000 gallons of sirup were made in the United States in 1918, according to the first estimate of this product by the Bureau of Crop Estimates of the United States Department of Agriculture. One-third of this was made in Louisiana, and below that State in order of production are Alabama, Georgia, Mississippi, and Florida. In the census year 1909, the ribbon-cane sirup made was 23,083,439 gallons. The 1918 output, therefore, shows an increase in nine years of 59 per cent. Only 13,000,000 gallons were made in the census year 1899.

Sorghum sirup, also, has increased greatly since the latest census year. The gain of 1918 was 46 per cent, and of 1917, a more favorable year for maturing the cane, 123 per cent. Sorghum sirup is one of the farm products that have declined and in recent years have "come back." The product of 1879 was about 28,400,000 gallons, of 1889 about 24,200,000 gallons, of 1899 about 17,000,000 gallons, and of 1909 about 16,500,000 gallons. The estimate for 1917 is 37,472,000 gallons and for 1918 it is 29,224,000 gallons.

These two cane sirups equaled 65,974,000 gallons in 1918, about 39,600,000 gallons in 1909, and about 30,200,000 gallons in 1899. Both are entirely consumed in this country. The war-time cry for more food and the sugar restrictions doubtless caused increased production of these nutritious and, when properly made, very palatable foods. It is likely that their utility and taste will prevent a relapse in their production after the world's food situation has become normal.

KILL THAT SEED TICK IN MARCH

These are seed ticks
If allowed to live, they feed from cattle blood until they are full grown
THEN

MARCH						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Don't Share Your
Milk, Butter and Beef with the Many Thousands of Cattle Ticks that Spring from One Seed Tick if it is allowed to mature

One of the female seed ticks shown at the top of this sheet will be able, shortly after it has been hatched from the egg, to lay from
3000 to 5000 EGGS

The adult female tick gorges herself on cattle blood and transforms it into eggs
THEN

THINK MAN!

ONE THIRD
of Your Beef, Milk and Butter Wasted if You don't Kill that Seed Tick early

Don't wait one month or two months after March, when the ticks become active after the cold season.
Every day a tick lives adds to the harm it does and the eggs it produces

The 3000 to 5000 eggs laid by one female tick hatch into seed ticks. Each female, in her turn, lays thousands of eggs. So it goes on. One tick allowed to live means
MILLIONS LATER

The female tick lays thousands of eggs which develop into seed ticks. This is repeated over and over

DIP THAT TICK NOW!

Let your "Chaps" read this
or you read it to them

Get your copy from your
Local Tick Inspector
or write for it.

The
EARLY
START
STOPS
The
TICK

The canal to
Prosperity
It has killed
Billions of Ticks
and saved
Millions of Dollars

Use your vat
All Season
—but—
it does most good
when used early

Bureau of Animal Industry
United States Department of Agriculture

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — FEBRUARY 26, 1919 — No. 30

MAKE FARM FEED FAMILY, ADVICE TO SOUTHERN STATES

With Long Growing Season It Should Be Easy Task

Enough Vegetables for Family of Five Can Be Grown on One and One-Half Acres, Says Department of Agriculture

"How much food for the family should the southern farm produce?"

"Sufficient to supply adequately the needs of the family throughout the year, so as to minimize the purchases of foodstuffs," urges the United States Department of Agriculture in a publication just issued, Farmers' Bulletin 1015, "Producing Family and Farm Supplies on the Cotton Farm."

Radical Change in System Necessary.

To reduce the traditional discrepancy between the family food production and consumption of the average cotton farm and to develop self-sufficiency of home-grown rations necessitates a radical change in the cropping system of the southern farmer. It involves a big opportunity for the all-cotton man to rid himself permanently of the bonds of the advance credit system, which heretofore has favored the importation of his bean, bacon, and bread supplies from the Northern and Western States at prices often unreasonable, consequent on middlemen profits.

Southern farmers are urged to raise more vegetables and fruits on their farms for family use. Favored with a long growing season and plenty of rainfall, gardening in this region is an easy and certain means of decreasing the annual "canned goods" bill. One group of 35 town families which became interested in vegetable raising as a means of self-defense against high living costs, raised an average of approximately $50 worth of food per family on gardens ranging in size from 300 to 499 square yards. The average cash outlay for these gardens was: Labor, $1.51; seeds, $1.51; and fertilizer, $0.52; a total cost of $3.54.

Food from Small Plots.

One man on three-quarters of an acre recently raised for his family of four persons 11 kinds of vegetables, to the value of $97.20 at a cash outlay of $5 for preparation and $2 for seeds. Another man grew $87.90 worth of vegetables on 1¼ acres at an expense of $7.20. Forty-two quarts of this produce was canned, while $26 worth was sold, the balance being consumed by the family.

For a farm family of five adults, the Federal Department of Agriculture recommends a garden of 1½ acres, containing about two-thirds of an acre of vegetables as well as one-half acre of late sweet potatoes and one-third acre of late white potatoes. One-half an acre of fruit to consist of the common fruits and berries adapted to this latitude, is also suggested.

FAMILY FOOD AVERAGE SOUTHERN FARM SHOULD PRODUCE.

Garden.	Acre.
White potatoes	⅓
Sweet potatoes	½
Vegetables	⅔
Fruit	½

One hog equivalent to 138 pounds of pork for each adult.

Sufficient eggs and poultry for home use from 30 to 50 fowls.

One acre of corn for meal.

Three acres of wheat for flour.

Sirup and sugar for family use from one-half acre of sugar cane or sorghum.

Two cows to provide milk, butter, and cottage cheese.

Enough grain, hay, and pasturage should be grown for all the live stock, including two or more work animals.

The corn meal and wheat flour supplies for the average farm family should be home-raised from one acre of corn and three acres of wheat, while one-half acre of sugar cane or sorghum will yield the essential 61 gallons of sirup for the use of five farm adults.

Two cows that will produce an average of 2 gallons of milk apiece daily for 10

(*Continued on page 12.*)

TURN CALAMITY IN COTTON TO PROSPERITY, SAYS OUSLEY

Solution of Serious Problem Lies in Safe Farming

Present Situation Rightly Used May Be Means of Forward Step, Declares Assistant Secretary of Agriculture

"There is not too much cotton if we profit by the experience of the past, exercise a little patience, and farm wisely in 1919."

Clarence Ousley, Assistant Secretary of Agriculture, thus concluded a summary of the cotton situation in an address February 17, before the Cotton Conference in New Orleans. The limiting factors of normal consumption, Mr. Ousley said, are the time necessary to restore the dismantled mills of France and Belgium, to reorganize the mills of Germany and Austria, and for the impoverished peoples of Europe to recover normal buying power. The latter, he thought, is "the most important in the long view, though the first two are more important in the short view." It should be assumed, he said, that for several years cotton consumers in Europe will practice the strictest economy and therefore will not buy as much American cotton as they bought in the last years of their prosperity.

Must Face All the Facts

The estimate of the best informed, Mr. Ousley said, is that there will be a carry-over of 3,000,000 bales of American cotton at the end of this season. But he pointed out that there was as much carry-over last year, and yet with small production cotton advanced by September 3 to an average of 35.38 cents a pound. Exports to the present time are more than half the exports at this time last year, and there is every reason to expect largely increased exports from this time forward.

"If we look only at the present supply, the temporary stagnation of movement, and the industrial and political chaos in Europe," he continued, "we will

despair of early relief, but if we look beneath the surface of the situation and if we have any faith whatever in the recuperative energies of mankind, we will realize that the remedy for the present embarrassment is in our own hands. We must know and must consider all the facts. When we know and consider only the favorable facts, or try to conceal the unfavorable facts, we only fool ourselves. The cotton-buying and manufacturing interests take the pains to be fully informed; they know the truth and they know, also, how to appraise the very purposes and plans now being considered, for they know the economic conditions and practices in the South and can fairly judge just what may be done and what can not be done in the present situation."

At the beginning of the planting season, he said, the South confronts a situation which may easily develop into a calamity but which, rightly used, may be the means of another forward step in sound agriculture and regional prosperity. He pointed out the similarity of the present situation to that of the fall and winter of 1914 when the farmers sold at an average of 7 cents a crop of cotton that had cost them from 9 to 12 cents. "But," he continued, "as we absorbed the record crop of 1914 in the smaller crops of the years following, so we may absorb the remainder of the crop of 1918 in another small crop in 1919."

World Needs All But Can't Buy.

The world, Mr. Ousley said, actually needs more cotton than the United States has to sell, yet the United States can not immediately sell all the cotton it has. Those interested in selling cotton have looked only to the world's dire need for supplies, he said, while those interested in buying cotton have looked only to the military, commercial, transportational and political aftermath of the European war and seem to think that the present chaos in Europe will continue indefinitely and to hope that the present supply will be sacrificed.

The solution of the problem, Mr. Ousley concluded, lies simply in safe farming. The task of freeing the South from bondage to cotton, for a number of reasons, has been slow, he said, but the cause of safe farming was greatly promoted on the outbreak of the European war, which increased the demand for food and feed supplies and decreased the demand for cotton. From 1914 to 1918 the cotton growing States decreased their production of cotton and greatly increased their production of food and feed crops.

"If we make the same progress in food and feed crops in 1919 that we have made in the preceding four years," he said, "there will not be land or labor enough left to produce more cotton than the world requires. What is the inducement to produce more food and feed and live stock? The answer is plain. If there is one thing that seems clear in the confusion of the European situation, it is that for several years Europe will require large supplies of American live-stock products. Meat and corn are the principal items of food, and they both promise to be high for some time to come."

Half a Million U. S. Mules With "Old Glory" in France

Mules are in favor as draft animals in the war operations in this country and in western Europe. The exports during the war, undoubtedly for war purposes, were about 350,000 mules in place of a normal export of probably 22,000. The shipments overseas by the War Department numbered about 29,000 mules, and at about the end of 1918 approximately 106,000 were in the service of the War Department in this country. Therefore, nearly 500,000 mules, the Bureau of Crop Estimates says, were supplied to the War Department and the Allies by the farms of this country for war service.

Comparison of mules with draft horses is interesting. The War Department shipped overseas about 29,000 mules and 33,000 draft horses, of both of which only 600 were lost en route. That department bought 29,000 mules in France, Great Britain, and Spain, and 123,000 horses for all purposes, the draft horses not being separately reported. On December 25, 1918, there were on hand with the American Expeditionary Forces 56,000 mules and 110,000 draft horses, and the War Department had on hand November 2, 1918, 162,000 mules and 186,000 draft horses.

In the operations of the United States Expeditionary Forces overseas to December 25, 1918, the total loss of animals was 42,311, which included 36,189 horses and 6,122 mules.

WEEKLY NEWS LETTER INDEX.

A complete subject index of Volume V of the Weekly News Letter is now ready for distribution. This index is issued as a supplement to the News Letter, but will be supplied only to those who send in a request for it.

Those wishing this index should address a postal card to the Division of Publications, United States Department of Agriculture, Washington, D. C.

PLUNGING IN TOBACCO GROWING NOT JUSTIFIED BY SITUATION

High Prices on Leading Types Due to War Conditions

Farmers in Sections Where Tobacco Has Been Introduced to Replace Cotton Urged to Practice Diversification

"Plunging" in tobacco growing to the neglect of other crops is not justified by the present tobacco situation, which the Department of Agriculture, in a statement recently issued, describes as difficult. In territory where tobacco is a new crop, recently introduced to replace cotton under boll-weevil conditions, as in portions of South Carolina and Georgia, the best interests of the farmers, the statement says, appear to lie in the development of a safe and well-diversified system of farming rather than to plunge from the uncertainty of cotton production into the possibly still greater uncertainty of tobacco production under existing conditions. While it is impossible, the statement declares, to arrive at the quantity of tobacco Europe will be prepared to purchase during the next year or two, it seems likely that any considerable increase over the 1918 crop in the flue-cured section would be followed by a decline in market prices.

The largest crop of tobacco the country has ever produced is being marketed, and while prevailing market prices are very high for some of the leading types, such abnormal prices are said to be due primarily to war conditions. The department points out that the country has grown three large crops of tobacco in succession, with no decided shortage in production of any of the leading types.

As compared with pre-war figures, exports of leaf tobacco were somewhat above normal in 1916, much below normal in 1917, and still slightly below the average in 1918, average exports for these three years being approximately 380,000,000 pounds as against an average of 416,000,000 pounds for the three years ending with 1913.

More Leaf Tobacco Used.

The quantity of leaf tobacco annually consumed in domestic manufacture during the last three years shows an increase of about 100,000,000 pounds over the preceding period, due largely to a decided progressive increase in the manufacture of cigarettes. However, present indications are that no more tobacco was consumed in domestic manufacture in 1918 than in the preceding year. Stocks of leaf tobacco in the hands of dealers

and manufacturers as of January 1 are reported as about 1,235,000,000 pounds for all types, a considerable increase over the figures of previous years. With a 1918 crop estimated at 1,340,000,000 pounds, a domestic consumption of about 720,000,000 pounds, leaving a large surplus over prewar export requirements, and with stocks of leaf tobacco in the hands of dealers and manufacturers above the normal, it seems obvious, says the department, that ordinarily there would be a tendency toward lower prices. Unfortunately there appears to be no means available at this time for arriving at the European requirements for leaf tobacco and its products during the next year. Cigar leaf, practically all of which goes into domestic consumption, has declined sharply in price since the signing of the armistice, and the market for this type has been inactive. The fire-cured types, which are exported perhaps to the extent of 80 per cent of the production, are selling at moderately high prices. The flue-cured type, somewhat more than half of which is normally exported, and Burley, which ordinarily is not an export type, have been selling at abnormally high prices.

The situation with reference to flue-cured tobacco is of special importance in view of the extraordinarily large crop of last year and the possibility of a further large increase in the crop this year, particularly in eastern North Carolina and in South Carolina and Georgia, where cotton is the chief competing crop. The situation would seem to be one calling for the exercise of caution by farmers, particularly on the part of those who have not previously grown the crop and would need to provide new curing barns and other equipment.

ARMY ANIMALS BOUGHT ABROAD.

Not all of the animals used by the United States Expeditionary Forces in overseas service were taken from this country. More than twice as many were bought abroad. The total number of animals purchased overseas to January 11, 1919, is 152,336. Purchases of horses in France amounted to 109,848; in Spain, 1,531; and in Great Britain, 11,898. The value of purchases in France was $43,122,094; in Spain, $589,160; and Great Britain, $5,314,711, or a total value of $49,025,965 for 123,277 horses purchased overseas. The total number of mules purchased overseas amounted to 29,059, with a value of $11,115,847. There were 9,341 mules, valued at $2,895,928, purchased in France; 12,941 mules, with a value of $5,619,156, purchased in Spain; and 6,777 mules, valued at $2,600,763, purchased in Great Britain.

RYE ASSUMES LARGER PLACE IN AMERICAN AGRICULTURE

Indications that Still Greater Acreages Will Be Sown

U. S. Department of Agriculture Advises Its Substitution for Wheat in Some Sections Because It Yields More Food

After two centuries or more of hard sledding, rye appears to be getting a good start in the United States. Since 1914, there has been a steady annual increase in rye acreage. The acreage harvested in 1918 was more than double that of 1914. More frequently than ever before, rye as a safe and desirable crop is being recommended to farmers by the United States Department of Agriculture, by State colleges, and by experiment stations. More rye flour is being eaten in the homes of the American people.

"More rye should be grown," says the United States Department of Agriculture in a recent publication, "The Place of Rye in American Agriculture." In many places, it is said, rye should replace wheat, as it will yield more food to the acre. That is not especially true of any one section of the country, but applies especially to sandy lands from the Lakes to the Gulf. Rye is hardier than wheat and less liable to winter killing. It will produce profitable crops on some lands not adapted to wheat. It requires less fertilizers. It is itself an aid to fertility, storing up for the winter soil nitrogen that would otherwise be leached out and wasted. It may be sown both earlier and later than wheat, and, therefore, is advantageous from the farm management standpoint. It is excellent as winter pasture, as a cover crop, and as a soiling crop.

On poor, sandy land, on land that is acid in reaction due to lack of lime, and on land poorly prepared for receiving the seed, the Department of Agriculture says, rye will usually yield better than wheat. It should be sown more generally on the sandy lands along the lakes in Michigan, Illinois, Indiana, Ohio, and New York, also in New Jersey, and generally in the coastal plain region of the Atlantic and the Gulf. On acid lands, too, large areas of which are found in the eastern half of the United States, notably in southern Illinois, Missouri, and Pennsylvania, rye should be grown because of its ability to withstand the acidity to good advantage.

One of Chief Bread Grains.

The primary use of rye, of course, is as a bread grain, rye and wheat being the only grains from which light bread can be made. Substitutes can be used up to a certain point but the basis of such mixtures must always be either wheat or rye.

Aside from its utility as a breadstuff, rye lends itself to a wider range of uses than any of the other small grains. While it does not possess the ability of the legumes to utilize the nitrogen of the air, it does take up and store in its tissues a great deal of nitrogen from the soil, the amount taken up per acre by rye sometimes being larger than the amount taken up both from the soil and the air by legumes. That is one of the qualities that go to make it, perhaps, the best winter cover crop.

It is pointed out that when rye is planted as a cover crop to be later used as green manure, it should be turned under before fully mature to prevent its taking up too much of the moisture and plant food from the soil.

Rye is recommended as a nurse crop in seeding down grass and clover and as a soiling crop. It is ready for use early in the spring when pastures are too young and other feeds are usually scarce. Cutting and feeding should begin when the plants show the first heads. Dairy cattle relish green rye and its use generally results in an increased flow of milk. An acre should yield from 4 to 12 tons of green material. While not as good a silage material as corn,

COMING THROUGH WITH RYE.

More acres and more bushels of rye were harvested in 1918 than in any previous year in the history of the United States.

From 1849 to 1909 rye production in the United States was practically stationary. From 1909 to 1918 the production was almost tripled, the greatest increase coming in 1917 and 1918.

Five years ago there was approximately 1 acre of rye for each 21 acres of wheat in the United States. In 1918 there was approximately 1 acre of rye for each 10 acres of wheat.

The 1918 rye crop was more than 76,000,000 bushels.

The world production of rye amounts to about one and two-thirds billion bushels, somewhat less than half the annual wheat production.

The United States Department of Agriculture thinks it probable, now that farmers are becoming familiar with the crop and its advantages, that rye will have a permanently larger place in American agriculture, and that from an agricultural point of view there should be a further considerable increase in production.

it makes silage of fair quality if cut when the grain is in the late milk stage.

Best Cereal for Pasture Crop.

Of all the cereals, rye is the most suitable for general use as a pasture crop. It makes good fall growth and can be used for late fall pasture. It is more cold-resistant than any of the other cereals, and will remain green where any of the others suited for pasture would be wholly or partially killed.

Unground rye grain is not recommended as an animal feed, except in rare circumstances.

Rye straw is highly valued for bedding horses, for packing furniture, crockery, and nursery stock, and for manufacturing purposes, especially for stuffing horse collars. When properly kept it brings a better price than wheat straw.

Desirable varieties of rye have been developed and are being distributed widely. Knowledge of the crop is being gained by farmers who did not know it a few years ago. People are learning to use rye as an article of diet. If they will only continue and increase their use of it, says the Department of Agriculture, they will be assisting in establishing a system of agriculture better suited to the country and productive of a greater quantity of foodstuffs on the present cultivated acreage.

BUTTER STANDARDS NOT BEFORE SECRETARY HOUSTON

The matter of a definition or standard for butter is not before the Secretary of Agriculture for consideration at the present time, say the officials in the Bureau of Chemistry in charge of the enforcement of the food and drugs act, in answer to numerous inquiries from butter manufacturers. The joint committee on definitions and standards, which is composed of representatives of the Association of American Dairy, Food, and Drug Officials, the Association of Official Agricultural Chemists, and the United States Department of Agriculture, has had the matter under consideration for some time, and public hearings on the subject were held in St. Paul on June 19, 1918, and in Washington on June 24, 1918. The committee still has the matter under consideration. No conclusion has been reached, and it is unlikely that a final decision will be reached at any time in the near future. According to the usual practice, the joint committee makes its recommendations first to the Association of American Dairy, Food, and Drug Officials and the Association of Official Agricultural Chemists. If these associations adopt the recommendation of the committee, the matter is then referred to the Department of Agriculture for consideration. If the department approves the recommendation, the definition or standard is then promulgated for the guidance of the officials of the department charged with the duty of enforcing the food and drugs act, and also of food and drug officials of the various States.

Reports Single Season's Test of Use of Nitrate in Growing Corn

On account of the widely different opinions held by experts as to the results of the use of nitrate in growing corn, an attempt to get a more accurate indication of its effect upon the corn crops of the South was made by the Bureau of Plant Industry in cooperation with the States Relations Service, under departmental supervision. A test of nitrate was therefore made by farmers in certain of the Southern States and a record of the results of its use on their farms kept. The nitrate was applied at the rate of 100 pounds to the acre, and while there was a slight variation in the time of applying it, in no case was it applied before the corn was above the ground, and in most cases it was applied after it had reached a height of 18 inches.

In considering the following tabular statement of these experiments it is important to remember that these figures show the results of experiments conducted during one season only, and that the results might differ if the crops were grown under different weather conditions or if the experiments were carried on for a series of years.

Location.	Ordinary farms.		Good farms.	
	With nitrate.	Without nitrate.	With nitrate.	Without nitrate.
ALABAMA.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Calhoun County	(1)	(1)	17.3	8.5
Fayette County	17.0	18.2	22.0	20.0
Lauderdale County	33.4	30.6	38.2	36.6
Limestone County	35.0	23.0	50.0	31.0
Madison County	42.8	33.0	43.8	31.0
Talladega County	20.0	20.0	35.1	29.0
Walker County	15.2	9.3	27.0	20.0
GEORGIA.				
Floyd County	30.0	20.0	75.0	30.0
Madison County	18.0	13.0	28.0	21.0
Oconee County	17.5	9.3	25.2	17.3
Sumter County	9.0	5.0	13.0	8.0
Tattnall County	12.8	13.0	15.5	13.9
NORTH CAROLINA.				
Anson County	33.0	24.0	50.0	35.0
Columbus County	(1)	(1)	42.1	36.8
Rockingham County	32.7	26.2	53.5	48.7
Washington County	25.0	20.0	47.5	31.0
SOUTH CAROLINA.				
Anderson County	15.3	10.8	30.5	19.2
Darlington County	7.0	7.0	21.0	14.0
Fairfield County	7.1	2.9	20.0	12.3
McCormick County	(1)	(1)	20.0	15.0
Richland County	21.3	15.6	79.7	65.5
Do	28.0	15.0	31.5	25.0
Spartanburg County	46.2	26.5	56.0	50.7
Sumter County	28.0	24.0	40.0	28.0
Williamsburg County	(1)	(1)	20.1	14.0
York County	27.0	18.0	28.0	17.5
VIRGINIA.				
Accomac County	(1)	(1)	57.4	45.0
Augusta County	61.0	54.3	63.0	51.5
Loudoun County	45.0	29.0	60.0	52.0
Mecklenburg County	(1)	(1)	33.0	26.0
Prince Edward County	30.0	15.0	43.3	43.3
Roanoke County	56.5	45.0	61.5	55.0
Sussex County	35.6	33.5	49.7	42.0
Average	27.5	20.8	39.4	30.1

[1] Not reported.

COUNTY SUPPLIES OWN LIMESTONE

The county agent of Athens County, Ohio, found practically the entire county needed lime. Fifteen carloads were secured for the farmers through the efforts of the farm bureau. A quarry in the county was opened and crushed limestone produced at $1.75 a ton.

RAW ROCK PHOSPHATE SHOULD BE USED WHERE AVAILABLE

Former Unpopularity Due to Incomplete Experimental Work

May Be Used Profitably as Reinforcement to Stable Manure or for Plowing Under With Green Cover Crops

As a cheap and satisfactory source of phosphoric acid, raw-rock phosphate merits extensive use on farms in localities where the material is available, suggests the United States Department of Agriculture. Nowadays when all commercial fertilizers are abnormally expensive is the time to make liberal use of raw rock as a reinforcement of stable manure, as a material to be distributed and plowed under with green cover crops and as a profitable plant food for direct application to soils that are rich in organic matter.

The relative unpopularity of raw-rock phosphate in the past has resulted from incomplete and unsatisfactory experimental work. Recently the farm use of raw rock has expanded to 91,000 tons annually, worth approximately $750,000.

Of course when immediate results are desired, the more costly acid phosphate is preferable as its plant food is readily soluble and suitable for rush order use. Raw-rock phosphate, although it contains twice as much phosphoric acid as the average acid phosphate, slowly releases its stores of food for crop use. It costs about $6.50 a ton in carload lots now at the mines. For practical results, it is essential that the raw rock be finely ground to the extent that 90 per cent of the material will pass through a sieve having 100 meshes to the linear inch.

How to Spread.

Where the raw-rock phosphate is used as a reinforcement for stable manure it may be spread at the rate of from 50 to 60 pounds over each ton of manure as it is hauled from the barn or stable yard to the fields. A much better practice, however, is to compost the rock with the manure for a period of a month or more before spreading on the fields. On account of its admirable absorptive qualities the raw rock is used as an absorbent in dairy stables. The common practice is to spread about 1 pint of the material daily behind each cow in the stable.

Where a green cover crop, such as cowpeas or soy beans, is to be turned under, it is a valuable practice to spread about 1,000 pounds of raw-rock phosphate an acre over the green stuff before the plowing is begun. Products are developed during the decomposition of the organic matter which are efficient in liberating the plant food that is slowly available in the raw rock. Where the raw-rock phosphate is applied in ½-ton doses an acre to a soil that is very rich in organic matter the same beneficial results are slowly notable as obtained where the fertilizer is turned under with the green crop.

The recent shortage and high price of soluble phosphate was one of the most serious problems which confronted the agricultural interests of the country. During the period when sulphuric acid was in keen demand for the manufacture of munitions, raw ground rock phosphate was the only material which could be produced in large quantities to make up the threatened serious phosphoric-acid shortage occasioned by the curtailment in the supply of sulphuric acid available for the making of acid phosphates. During the agricultural readjustment period raw-rock phosphate is one of the best and least expensive fertilizers which the farmer who is interested in the long-time and permanent improvement of his land can use. Conclusions reached by experts of the United States Department of Agriculture as a result of extensive laboratory, field, and greenhouse experiments with raw-rock phosphate are to the effect that for definite results it is essential to continue every investigation with this fertilizer for at least five years, due to the fact that the plant food which it contains is slowly available. Where liberal applications of even medium qualities of raw-rock phosphate were added to soils they produced an increased yield of many crops the first year of their application. The effectiveness of raw-rock phosphate depends largely on its thorough distribution in the soil, this distribution being brought about by liberal applications of very finely divided material as well as thorough cultivation.

Best Form of Acid.

The presence of decaying organic matter in the soil increases the effectiveness of raw, ground rock phosphates due probably both to greater bacterial activity and the higher content of carbon dioxide in such soils. From a similar standpoint, the effectiveness of raw-rock phosphate is usually increased after remaining in the soil for a year or more. Most crops respond more quickly to applications of acid phosphate than to bone, basic slag, or raw rock phosphate. Accordingly, where the early stimulation and quick maturity of the crop are the main consideration, acid phosphate is probably the best form of phosphoric acid to apply.

The question of whether increases in yield ordinarily can be produced more economically by applications of soluble or relatively insoluble phosphates must be considered in a measure an individual problem for each farmer, since it depends on a number of factors of which the most important are the nature of the soil, the crop system employed, the price of the various phosphates in each particular locality, and the length of the growing season.

BALANCED FARMING SHOULD NOT GIVE WAY TO COTTON

Because of unsettled conditions in Europe it is impossible to foresee what the economic conditions with regard to cotton will be. The United States Department of Agriculture is urging Southern farmers to "play safe," and just at this time more than ever before safety appears to lie in a balanced type of farming that will enable the farmers of the South to raise their own home supplies of both food and feed, which they can do without interference with either the acreage or the labor necessary to produce a sufficient supply of cotton.

This view was recently expressed by Secretary Houston in reply to a telegram from Charles B. Metcalfe, of San Angelo, Tex., though the conclusion had been arrived at and expressed some time before. The agricultural colleges, in cooperation with the Department of Agriculture, through joint extension forces have been organizing for several weeks past for the purpose of bringing before farmers in the several States definite suggestions for operations in 1919. These joint forces are furnishing farmers the latest information that the department and the colleges have been able to gather concerning prospects for next year. Generally speaking, extension forces are agreed that the wise policy for Southern farmers to pursue in 1919 is to make sure of the production of their own home supplies of both food and feed. Attention is being called to the fact that an average yield of cotton on an acreage the size of that in 1918 will produce from two million to three million bales more than was produced in 1918.

The Secretary's telegram to Mr. Metcalfe says, in part: "On account of unsettled conditions in Europe it is impossible to make any definite forecast of the economic situation, but certainly it is a safe policy to pursue for the farmers of the South to raise their own home supplies of both food and feed. They should be able to do this and still have sufficient acreage and labor to produce the requisite quantity of cotton. The department believes in a balanced agriculture and that only with a balanced agriculture can labor be sufficiently and properly utilized."

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Delaware Boy Wins State Championship Three Years

State champion two years in succession and winner of the grand State championship of Delaware this year, is the record of a Newcastle County boy of 17. In 1916, Wallace Cook, as club champion of Delaware, won a free trip to the International Dairy Exposition. The next year, 1917, he cleared $183.27 from his corn club acre, and at the State corn show, in competition with the best corn growers of the State, won the sweepstakes prize in both the 10 and 50 ear corn classes. In 1918 Wallace used his club earnings of the previous year to purchase a pure bred Holstein heifer and calf. At the State fair last fall he was awarded the Holstein-Friesian championship prize for the best club calf on exhibition, and was also declared State champion in the boys' and girls' dairy judging contest. His club acre of corn this year produced 63.4 bushels of shelled corn, and on his exhibits of 10 and 50 ears he was awarded the grand championship prize of Newcastle-Kent County.

Tinner's Junk Room Becomes Home of Maryland Club Girls

Washington County, Md., has a live girls' club, which is under the direction of the home demonstration agent. The members of the club last year patriotically dried, brined, and canned fruit and vegetables in accordance with the requests from Washington. But girls are girls, and although they were most willing to do all kinds of food producing and conserving, they wanted some fun mixed in with the work. They became ambitious and decided to have a club room of their own. The one spot which seemed available for the purpose was a tinner's junk room. This might have discouraged grown-ups, but not these girls. There was little money to be spent, but their work and ingenuity made up for the deficit. The rubbish was cleaned out and everything left underwent a severe scrubbing. The broken furniture was mended and used to the best advantage and other pieces were donated by people in the town who were interested in what the girls were trying to do. Unbleached muslin was dyed and converted into attractive table runners and chair covers, which were bound with cretonne to match. The day the club room was completed the girls put on a demonstration of club work in their room to show the public what they were doing. There is no more popular spot in town than the cozy and attractive club room, and it is meeting a real need among the girls of the county.

SUCCESS INSPIRES CLUB MEMBERS.

One reason why more than 80,000 boys and girls in the South enrolled last year in the pig clubs, organized and conducted by the United States Department of Agriculture, cooperating with State agricultural colleges, is seen in the opportunities offered them to duplicate the successes of other club members. For instance, here are the achievements of a Tennessee boy. Fifteen months ago he purchased a Duroc-Jersey gilt, giving his note for 12 months to the local bank. This pig has farrowed 27 pigs and has raised 21 of them. The boy sold three of the first litter at $25 each. Four of them now weigh nearly 420 pounds and are worth $320. The seven pigs of the second litter are worth $175, and the seven of the third are worth $105, while the mother—the pig purchased when the boy entered the club—is valued at $75. This means a profit of $750 in 15 months.

CLUB GIRL WINS POULTRY RECORD.

The poultry record for the past year for West Virginia was made by a girl member of the Harrison County Poultry Club. She is Miss Mildred Robinson and her record shows a profit for the year of $111. She now has thirty-three 1-year-old hens and 27 pullets in her flock, and so far through the winter has been getting a dozen eggs a day, for which she has received 60 cents and more.

YOUTHS MAKE MONEY WITH RABBITS.

When meat became scare and high in price, youngsters in certain parts of the country undertook rabbit raising as a part of their club work. In Utah 746 club members did the required club work in rabbit raising and turned in written reports, while several hundred did some work. A total of 11,190 rabbits were raised during the season. Valued at 75 cents apiece, the total value of the work was $8,392.50. Those who carried out the work realized a satisfactory profit and plan to continue it next year.

Dollar Returns in Boys' and Girls' Club Work

If you could lay out 71 cents in such a way that it would produce $27 in tangible property, would you regard it as a good investment?

That is exactly what the United States Department of Agriculture, cooperating with the State and local governments in its Northern and Western States, did during 1918 in its boys' and girls' club work. The work of supervising, directing, and reinforcing the boys and girls in their food producing and food conservation work cost exactly 71 cents per capita for the year, and the quantity of food produced and saved by the same boys and girls averaged $27 per capita.

The cost has steadily decreased and the production has as steadily increased for the past three years. In 1916 the cost per capita to the Department of Agriculture and cooperating agencies was 89 cents per capita, and the value of food produced per capita was $20.80. In 1917 the cost was 78 cents and the production was $21.76.

The greatest drawback to the work at the present time is that only a limited number of the boys and girls of the United States can be reached because of the lack of paid leaders. The Department believes that every well-populated county in the Northern and Western States should have a full-time leader of boys' and girls' club work, paid by the cooperative extension office of the county representing the State college of agriculture and the United States Department of Agriculture, in order to make more extensive this "made in America" farm and home extension education. In the South the work is conducted by another plan.

The results sought to be obtained by the work, and which experience has shown are obtained, are to make the farm and the farm home more tolerable for boys and girls, and thus to improve agriculture and home life; to change the point of view and aspirations of farm boys and girls so that they will want to prepare themselves for the business of farming and home making; to socialize boys and girls in rural communities through agricultural and home making motives; to train and develop young people, before they have passed the age at which such training can be made most

effective, the habits of cooperation and to become the leaders in their own communities. This is to be accomplished by giving boys and girls well-trained, human, sympathetic leaders in their out-of-school time.

Corn Club Boys Grow 1,003.9 Bushels of Corn on 11 Acres

Eleven Monroe County, Indiana, boys, members of a boys' and girls' club organized by the United States Department of Agriculture and the State agricultural college at Purdue, raised, in 1918, 1,003.9 bushels of corn on eleven measured acres. The average yield, 91.3, had never been equaled by a club in the State, although there have been larger individual yields.

The highest yield, 105.9 bushels, was secured by Howard Jammison, 18. The second best showing was made by Winfred Buckley, 15, who raised 98.6 bushels on his acre.

Great difficulty was experienced last year in obtaining good seed corn in that locality, as elsewhere, but by the aid of a former county agent and the local bank each boy who was a member of the corn club secured one dozen ears of high-quality seed—enough to plant one acre. This spring there will be no worrying on the boys' part over the seed-corn situation—for before frost last fall they had selected from their own plots enough ears of the best seed type to plant over 100 acres this season.

Club Starts Boy on Road to Success as Poultryman

That organized agricultural club work among boys and girls is something more than a contest which ends with the season, but a continuous, constructive piece of work which eventually leads the club members into the business of farming and home making is illustrated by the accomplishments of a poultry club member in Vermont.

In 1912 John Alexander joined the Vermont Poultry Club in spite of the opposition of members of his own family, and, in a number of instances, discouraging words from friends and neighbors who did not understand what club work meant to the American boy. He started with only a few settings of eggs, but two years later he was well on the road to success, for he had become the champion in his county in poultry club work, having produced the best grade of birds and the most profit from his investment. In 1914 he exhibited some of his birds at the county fair, the poultry show, and the State fair, and succeeded in winning a number of ribbons and first prizes. The following year he became the champion poultry club member of his State and was sent to New York City to the National Education Association to tell how he did his work and what he thought of it. The following year he again won the State championship.

By this time his reputation in the poultry industry had spread to other States and he was selling settings of eggs throughout New England direct to consumers, and had built up a trade in the sale of birds for breeding purposes.

One year later, in 1917, he started out with a business of his own, using his own business cards, his own business stationery, and expanding his poultry plant twofold. He became manager not only of his own poultry plant, which he developed rapidly, but found time to take a position as superintendent of the poultry farm at one of the State institutions.

INVESTMENT IN BOYS PAYS DIVIDENDS.

The United States Department of Agriculture, the State agricultural colleges, and other agencies for the promotion of better farming are spending considerable money in club work among boys.

Does it pay? Here is the opinion of Dr. Thomas F. Hunt, Dean and Director of the College of Agriculture, University of California:

"The College of Agriculture did not, in my opinion, get as effective results from and other equal sum of money which it expended as it did from the amount of money spent on boys' clubs.

"These clubs have been running long enough for us to have some knowledge of their influence on the future lives of the boys concerned. I think I am well within the mark when I say that for the amount of money expended we get the greatest human results."

Club Calf Brings $1 a Pound at Minnesota Baby Beef Show

Sixteen counties in Minnesota were entitled to send 48 boy and girl club members, with their calves which had won prizes in their own county, to the first baby beef show held in that State. Owing to the influenza epidemic only 29 were able to go to St. Paul in December and exhibit the baby beeves they had raised; but the crowd made up in enthusiasm what it lacked in members. The calves were sold at auction and brought an average of 20 cents a pound.

The champion, owned by Irwin McKay, was sold for 35 cents a pound, and with the prizes won, netted his young owner $447. Later the calf was resold for $930, or for a little more than $1 a pound.

One Ewe Gives a Club Boy Profit of Almost Fifty Dollars

Late in the fall of 1917, George Irwin, of Henry County, Ind., and nine other boys in his neighborhood organized a sheep club. A few interested stockmen and the local bank made it possible for the club boys to secure one bred ewe apiece. Each boy gave his note to the bank for the purchase price of his sheep.

In the summer of 1918 George Irwin presented the following statement of his work and investment:

DISBURSEMENTS.	
Cost of 1 ewe	$18.00
Feed	6.25
Interest on note	.72
Total cost	24.97
RECEIPTS.	
1 ewe (inventory)	$18.00
1 lamb (sold)	25.00
1 lamb (sold)	22.50
Wool (sold)	6.50
Total receipts	72.00
Total cost	24.97
Profit	49.03

Investments paying 200 per cent were worth looking into decided the farmers who lived in the locality of this club, and interest in sheep raising increased.

Another boy in the Henry County club has developed a flock of 30 ewes, and plans to have more. His father has become so interested in his son's work that, although the boy is rather young, he is allowed to go to sales and to do his own bidding on prospects for his flock. Practically all the boys engaged in the sheep-club work are keeping their foundation animals and at the same time are adding to their stock.

Previous to 1918 there were but few boys and girls organized into sheep clubs under the supervision of the Department of Agriculture and the State agricultural colleges. With the high price of wool and mutton, the sheep project, however, has become increasingly popular. Last year 257 such clubs were organized with an enrollment of 3,613 members. During the year 8,005 lambs were raised by these young people and 2,006 pounds of wool were marketed. The total value of the flocks at the end of the year was $131,173.40; the initial cost of the sheep, together with the expense of feeding

them, was $37,082.82; the total profit made by the boys and girls who were members of the sheep clubs and who continued the work throughout the year was $94,090.58. The results the boys have been getting have opened the eyes of their fathers. The boys and girls in the sheep clubs are demonstrating in every State that sheep are profitable if well handled.

Michigan Club Boys and Girls Report Nearly $200,000 Profit

Club work in Michigan, as well as in other States, is making rapid progress for two reasons: It is interesting thousands of young people, and is a financial success. According to a recent report of the State Extension Service of Michigan club workers in that State organized and supervised 2,700 clubs with a total membership of 46,989 boys and girls, the majority of whom lived in rural communities. Aside from being taught how to raise gardens, field crops, poultry and live stock, to can, cook, and sew, these boys and girls were acquainted with cooperation, business methods, and thrift. The total cost of supervising the work in Michigan, which was undertaken as an educational rather than a money-making proposition, was $54,980, a part of which was paid by the Federal Government, a part by the State, and a part by county and local governments. A total net profit reported by the youngsters was $188,290.56—making a total net profit to the State, after all costs were deducted, of $132,670.65.

CLUB YOUNGSTERS GROW SUGAR BEETS.

To help increase the world's supply of sweetness, sugar beets have been grown by the members of the boys' and girls' clubs this year. Their work has been done under the direction of the United States Department of Agriculture in connection with the State agricultural college in each of the States where sugar beets can be grown successfully. In New Mexico during the past summer the club members raised about 10 tons of sugar beets. Over 200 gallons of sirup has been made out of part of the roots.

Way Down Upon Suwanee Boys' Sows Top Sale Ring

The first club boys to break into the sale ring in Florida are two 10-year-old lads of Suwanee County. At an auction sale of registered swine held at the recent meeting of the swine growers of that State, two registered Poland China sows grown by these two boys were bid in by the Florida College of Agriculture at $90 each. The fact that less than 6 other hogs out of the 40 sold brought more money indicates the kind of hogs these boys raised. The two sows were litter mates and were bought by the boys at the same time and at the same price, $16 apiece. At the close of the club contest the sows were 8 months and 28 days old.

THE TALE OF MY PIG.

A little girl in Windham County, Vt., a member of a boys' and girls' pig club organized by the Department of Agriculture and the State agricultural college, writes the following jingle in her club report about an incident in the life of her pig:

This is a story that I heard;
I'll tell it to you word for word.

There lay my pig beside a ditch—
Or water hole, I don't know which.

Beside him lay another creature
Resembling him in form and feature.

The time, I think, was last October,
The man was drunk, my pig was sober.

On the man's finger was a ring,
In my pig's nose a similar thing.

They both were dirty, fat, and lazy,
And seemed disposed to take life "easy."

And there might be other points, I ween,
Of likeness 'twixt the two be seen.

For brevity let it suffice
To say that neither looked too nice,

But in the mild, autumnal weather
They lay contentedly together.

Some city people passing by
Chanced these companions to espy,

And as they passed they dropped a word
Which my pig, listening, overheard:

"You may be rightly judged," said they,
"By company kept from day to day."

* * * * *

My pig got up and walked away!

One, which weighed 21 pounds at the beginning of the contest, weighed 273 at the end; and the other, which weighed 23 pounds at the beginning, weighed 269 at the close. The two boys, under the direction of the local club leader, fed and cared for their pigs in exactly the same manner.

BETTER SHEEP—MORE SHEEP.

Boys' and girls' clubs in the West are alive to the advantages of raising a greater number of sheep, and of having only the best breeds in their herds. County leaders of boys' and girls' clubs have demonstrated that this can be done, and business men are financing the scheme.

In Sheridan County, Wyo., for instance, the assistant State club leader distributed last fall 100 bred Corriedale ewes among club members—a big starter for what is expected to be a big response to the Nation's call for increased sheep production. This initial stock distribution was made possible through the generosity and foresight of one of Sheridan's progressive business men.

In Whitman County, Wash., the big wheat-growing section of that State, the county leader has placed two carloads of sheep with boys' and girls' club members. They summer fallow every other year there, and heretofore they have not had sheep enough to turn the weeds into profit. This season, as a result of this good foundation stock, sheep are all over the county.

These two instances are typical of what other Western States now are doing. The procedure is practically the same, and the increase in all of them is expected to be large, judging from reports coming to the States Relations Service.

Club Boys and Girls Feeding 100 Choicely Bred Calves

Wisconsin claims the distinction of having the largest boys' and girls' calf club in the United States. The Winnebago County Calf Club, organized by the county agent, already has 100 members.

It is being backed by the banks, the county superintendent of schools, the county agent, the secretaries of the breeders' associations, the officials of the county fair association, and the State leaders of young people's clubs. Any boy or girl can become a member of the club by owning and caring for a pure-bred or high-grade heifer calf or a pure-bred bull calf. The banks are furnishing credit to any of the juniors who need funds with which to purchase their calves.

The new calf club project is being promoted in conjunction with the pure-bred sire campaign. The 100 calves now being fed by the boys and girls were secured from Winnebago County breeders.

"The Immortal Hen, Whose Son Never Sets" was the slogan on a banner carried by Minnesota poultry club members at State fair in Iowa last fall.

AIRPLANES USED TO DISCOVER OUTLAW TEXAS COTTON FIELDS

Fliers Aid Eradication Work Against Destructive Pink Bollworm

Country Mapped by Aerial Patrols; Development of Survey and Inspection Work Thought to Be Probable

The airplane now has come to help agriculture.

Not as the tractor undertook to supersede the horse, for drawing plows and the like. The airplaue comes iuto the agricultural field as a scout, and the only duty thus far assigned it is to spy out hidden cotton fields.

Iu southern Texas, where the devastating pink bollworm of cotton has been trying to invade the United States from Mexico, there are cotton-free zoues, declared by law as barriers against the progress of the worm. But a few misguided farmers feel that their rights have beeu infringed and have developed a tendency to become outlaw cotton planters. Much of the country is heavily timbered. Roads are ueither plentiful nor good in many places, and it has been possible for au outlaw planter to tuck away a few acres of cotton in some uook of the woods beyond probability of discovery by ordinary means, though the United States Department of Agriculture was making diligent effort to spot every stalk of cotton in the quarantined areas.

Finds Outlaw Fields by Plane

Last year the department, through workers of the Federal Horticultural Board who were on the ground, took advantage of an offer to try out the airplane for scouting work. In this way Iuspector Hensley of the board discovered seven outlaw cotton fields in the heavily wooded couutry along Trinity River and around Galveston Bay which had escaped discovery by all other means.

Similar exploration and control work, conducted last fall and this winter is aided by a detail of Second Lieut. Harold Compere, of the Aviation Service of the Signal Corps of the Army. Lieut. Compere is a son of George Compere, one of the world's great entomological explorers and for many years connected with the plant quarantine and inspection service of California and also acting as a collaborator in plant iuspection work for this department.

Lieut. Compere has been at Ellington Field, Houston, Tex., in the center of the cottou-growing district infested with the pink bollworm, and has become familiar with the general needs of the survey work. After discussing the possibilities with Dr. W. D. Hunter, a member of the Federal Horticultural Board in charge of the field work against the pink bollworm iu Texas, Lieut. Compere became convinced that practical use could be made of his training as an aviator in connection with his scientific interest and training in entomology, and that the airplane would tremendously facilitate the scouting for the location of cotton fields, both within and outside the quarantined areas. This territory includes wide stretches of more or less swampy forested tracts, in which occasional small patches of cotton are being grown, aud which in the dearth of roads and resulting inaccessibility are very difficult to locate.

Help from War Department

Lieut. Compere made an application to the comuanding officer of Ellington Field for permission to engage in such work. This request was disapproved, but with the suggestiou that the request should be referred, with the indorsement of the Department of Agriculture, to the Division of Military Aeronautics, War Department. This was done, with the result that Lieut. Compere has received from the War Department full authority to undertake the work of locating cotton fields in the observation zone, and this work was actually begun January 14, Mr. Hensley again accompanying the aviator to make the observatious and, particularly, to prepare photographic maps of the entire district between the Brazos and Neches Rivers iu Texas, which is being kept under survey and observation.

About a week later, Lieut. Compere received his honorable discharge from the National Army, but before leaving he selected an aviator from the Ellington Field service to take his place, Second Lieut. William H. Tillisch, and the work has been in regular progress since the 14th of January. For the most part, Inspector Hensley is accompanying the aviator. Two flights were made ou January 1 by Carl Heinrich, an expert of the board, for the purpose of obtaining a panoramic view of the territory bordering the quarantine lines, to note the character and extent of any forests or wooded areas which might act as a natural barrier to the spread of the pink bollworm by flight of the moth, as well as to secure some idea of the value of aerial observations in connection with entomological scouting and mapping.

Country Mapped from the Air

Mr. Heinrich reports that the flights were made at an altitude of from 1,500 to 2,000 feet. At this elevation on a clear day a distinct vision could be had of the country over a range of 30 miles, and cultivated fields, buildings, shell roads, railway lines, creeks, and the character of wooded areas, whether pine or deciduous, could be easily distinguished. At the normal speed of the airplane—75 miles au hour—the ground moves so slowly that the observer has time to get a complete picture of the area and easily to distiuguish cotton from corn fields.

After reportiug in detail on the natural barriers found, Mr. Heinrich is enthusiastic in the belief that the airplane will tremendously facilitate all such scouting and reconnaissance work, including mapping. Photographs cau be made which can be assembled into a detailed map in a short time, compared with ground surveys by means of motor or other conveyances. Such surveys would be particularly useful in scouting territory like that of the Upper Rio Grande Valley, where cultivated areas and cotton fields, if existing, are widely separated and the roads in many cases practically impassable aud, furthermore, where the disances are so great that enormous loss of time and labor would be involved in any other method of survey. In just such work as that necessary in this pink bollworm survey and scouting, the airplane is expected to be exceptionally serviceable.

Useful in Agricultural Surveys

Similar use can be made of it iu other agricultural and forestry surveys, which are analogous to the similar mapping and survey use made of it for war purposes.

The test of last year, followed by the more important aud systematic utilizatiou of this new means of survey and inspection, marks probably the first use of the airplane in a practical way iu agriculture, aud may be the starting of an important use of this new means of transportation and observation for scouting and inspection purposes in other fields of research or control work.

67,948 ANIMALS SENT OVERSEAS.

In a statement made by the War Department it appears that since the United States entered the war and to January 11, 1919, this Government shipped overseas from this country 67,948 animals, which included 5,489 cavalry horses, 33,396 draft horses, 28,088 draft mules, and 975 pack mules. The total number of animals lost en route overseas so far reported is 600 horses and mules, or less than 1 per cent of the total number of auimals shipped.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Workers of the Department of Agriculture and the State Agricultural Colleges Are Doing to Carry This Message in Town and Country

Nebraska Ranch Women Start Playground in Sand Hills

The ranches in Custer County, Nebr., are large and the distance between the homes is great. The women, however, are not the kind to be daunted by difficulties, and a small group of them two years ago organized a community club under the direction of the home demonstration agent of the United States Department of Agriculture and the State agricultural college. There, as elsewhere, one of the big problems was the lack of suitable amusement for the young people.

The women of the Custer County Club finally decided to establish a playground. At first it seemed impossible, but the need was great and the more they discussed it the more tangible the plan became.

How Everybody Helped

Five acres of land adjoiuing the district school house was rented. Every farmer consented to plan his work with the idea of leaving Saturday afternoons free for his sons and the hired men, except in such emergency times as harvesting. The women agreed to do the same thing for the girls.

One fine spring morning the families met at the playground and a big day was put in cleaning the ground and placing the equipment. The women furnished a picnic dinner as their part of the frolic. Outfits for croquet, basket ball, football, and tennis were obtained and a good tennis court was constructed. Tennis became the favorite amusement of the older men aud women. This was the beginning of a summer of outdoor sport, not only for the young but for the older people.

Young People Care for Equipment

School had closed in the spring before the playground was ready for use, but at the beginning of the fall season it was placed at the disposal of the teacher and pupils. The equipment is cared for by the boys and girls. Various committees take pride in their responsibility.

All this has meant hard work on the part of the club women and the expense has been considerable. Part of the latter was met by selling ice cream and cake on Saturdays at the playgrouud and by giving picnics, lunches, suppers, etc. The rest of the mouey was raised by selling coyote pelts obtained in an extermination campaign against these animals.

EQUAL SUFFRAGE IN FARM BUREAUS OF MOST STATES

In more than two-thirds of the States the farm bureaus now include women as well as men in their membership. Boys and girls also have their place in the county erganization. As a consequence, women are takiug an increased interest in community work. Committees and bureaus which have the benefit of feminine as well as masculine judgment on farm questions have a basis for a broader viewpoint than do those composed of men only. The meu are said heartily to approve of having the bureaus open to their sisters and wives, and in many instances they seem to be even more enthusiastic than their wives are about women joining.

One Thousand Families Double Canned and Dried Products

Families of Champaign County, Ill., made some notable percentages of gain in production and conservation last year as a direct result of the efforts of the home demonstration agent, who was supervised by the Department of Agriculture and the University of Urbana. Reports from 1,000 families in that county show the following gains over the preceding year:

Vegetables canned, 44 per cent; vegetables dried, 18 per cent; potatoes stored, 7.6 per cent; eggs packed, 104 per cent; fowls raised, 21 per cent; cottage cheese used, 76 per cent; honey used, 100 per cent; sorghum sirup used, 100 per cent.

Decreases were noted in the amounts of fruit canned and milk consumed as follows: Fruit canned, 13.4 per cent; milk consumed, 19 per cent. The decrease in the former was due to the shortage of sugar, and in the latter to the need of supplying Army cantonments at Chanute Field and at Urbana.

Plenty of Fish and Honey Credited to One Woman Agent

One hundred and fifty ponds in Wilkinson County, Miss., stocked with fish from the Government hatcheries through the efforts of the couuty home demonstration agent, are now supplying plenty of fish, and when meat is needed to be conserved the fish proved a real asset to the county.

When the sugar scarcity began the home demonstration agent organized a county beekeeper's associatiou, and to-day the whole couuty is literally humming with bees. Even if there were no cane sugar available, there would be local honey enough to furnish plenty of sweetness.

Three community canneries have beeu started in the county in the past year. One is for the colored people. From one end of the county to the other the agent goes in her car loaded with a fireless cooker, iceless refrigerator, standard beehive and beekeeper's equipment, egg and butter cartons, equipment for candling eggs and preserving them in water glass, essentials for making cheese, model porch swing, wood box, mop, ironing board, flytrap, and all kinds of useful bulletins.

From two to four days are spent in each locality, where the value of the different appliances is demonstrated and information on home subjects is given.

Mothers and Daughters in Two Counties Save 24,381 Cans

Thousands of dollars worth of fruit and vegetables were canned last summer in two counties in the northern part of the lower peninsula of Michigau through the efforts of the mother-daughter canning clubs which were organized under the supervision of the Department of Agriculture in connectiou with the Michigan Agricultural College at Lansing. In these clubs the mother and daughters in a family do their club work together iustead of in separate clubs. The mother-daughter club members iu Missaukee County canned 24,381 quarts, while those in Osceola report 16,314 quarts. Counting the average cost of the canned products, if purchased at a store, to be 30 cents, $12,208.50 worth of canned goods was put

up by the women and girls in these two counties. Estimating the cost of materials and canning at 20 cents per quart, $4,069.50 was saved. Undoubtedly this total is low, because much that was canned would have spoiled in the gardens and orchards if this campaign had not been put on.

Manual Training Teacher Aids Community Driers in Montana

The people in Cascade County, Mont., became so interested in a community drier last year that they raised $250 to buy equipment for one. After the money was collected it was found that part of the equipment would have to come from so great a distance that it would not be there in time to be of use during the 1918 drying season. The manual training teacher in the high school, learning of the difficulty, made a dozen home driers with the aid of his boys. These were lent and traveled from one home to another as needed. Their itinerary was so well planned that they were seldom idle a day. Meanwhile the home demonstration agent of that county has planned the community drier for which money to buy equipment was subscribed. This spring everything will be in readiness to dry on a large scale the surplus fruits and vegetables raised in the county.

Shop With Care Before You Buy Clothing Material

When buying staple clothing materials, if you are not a good judge of quality, it is an excellent idea to look at several pieces of the same type of material but with different prices and compare the weight, color, and firmness of weave. Such a comparison will often emphasize the fact that the most expensive piece is not necessarily the best quality. It may be the season's most fashionable color and weight and its higher price probably is due to slight variations in the finishing and the fleeting popularity of the style.

There has been a tendency to abuse the practice of asking for samples from dress goods departments, but at times a sample is quite justifiable, as it will give the opportunity for home tests. Cotton and linen are affected by acids and very slightly affected by alkalies, while the reverse is true of wools. The alkalies found in the home are washing sodas and the washing powders. The Office of Home Economics of the United States Department of Agriculture suggests using the following simple test to determine the amount of cotton in a mixed fabric:

Add 4 tablespoons of washing soda, or 5 tablespoons of washing powder to a pint of soft water. The washing soda should be rolled to a powder before measuring. Bring to boiling and add sample, which should be about 1½ inches square. Boil carefully, to avoid spattering, for 20 minutes, adding water at intervals to replace that lost by evaporation. Transfer sample to cold water and rub between the fingers. The wool, which is gelatinized by the boiling, will disappear on rubbing and the cotton threads will be left unchanged.

MORE ICE—LESS FOOD WASTES.

"Harvest a crop in midwinter!"

With this slogan the United States Department of Agriculture is calling upon farmers, and especially dairymen, to reduce food waste next summer by cutting and storing ice now.

An Iowa enthusiast, in a letter to the department points out that although the cost of artificial refrigeration has increased in recent years, "nature is freezing ice at no greater cost than that of a century ago."

"There is not a person in a hundred," he adds, "who realizes the amount of cream which is spoiled throughout the country because dairymen have no means of caring for it."

To assist inexperienced persons in harvesting ice successfully the department is distributing a free bulletin giving explicit directions for both cutting and storing this winter's crop.

Among next summer's rewards for those who reap the ice harvest are a better market quality of perishable products and a well-filled ice box in the home. Ice cream, lemonade, ice-cold buttermilk, chilled melons, and ice for use in sickness—all these things which make farm life more pleasant can be had by joining the Department of Agriculture's campaign for storing a bumper ice crop on the farm this winter.

Massachusetts Market Men Patronize Community Kitchen

Community markets help to spread the work of the community canning kitchens. It has been found that more information has been asked for and the work done at the center has been largely increased by the proximity of a community market.

In one canning kitchen in Hampden County, Mass., the influence of the community canning kitchen last summer and fall extended far into the surrounding rural districts through the interest of the market men. The farmers brought products in large quantities and took them home canned or dried to their wives who were too busy with other work to do canning and drying on a large scale.

The work in this Holyoke, Mass., kitchen was both educational and commercial. It was supervised by a home demonstration agent who worked under the direction of the Department of Agriculture and the agricultural college at Amherst. Volunteer labor was supplied by the committee in charge of the kitchen. Although the prices charged for canning were higher than in many places, the capacity of the kitchen was taxed throughout the canning season. The money paid in for canning has been used for equipment and demonstration material to promote conservation work in that locality. In September over 5,000 women came to the kitchen for instruction, and more than 5,000 telephone calls for advice and instruction were received. Days on which the community market was held were always exceptionally busy.

Quart of Milk to Every Child Plan Formed by Florida Women

Florida women did their part last year in producing and conserving food, but this year their plans are even more extensive. Not only are increased production and conservation asked for by the extension workers but better care of the people's health is also urged.

The women living in the country have been asked to keep two cows so each child may have one quart of milk a day and each adult one glass. Milk at present is scarce and expensive in Florida, largely because of the cattle fever tick. Much milk is imported from outside territory and during the winter months a large proportion of it goes to feed tourists. At the time of the heavy hotel demand the amount available for Florida's children is much reduced. It is planned to produce more poultry and eggs as well as vegetables, grapes, and berries.

The women are preparing to can meat, fish, and vegetables by steam pressure canners, to dry fruit and vegetables in home-made driers or in a community one, to brine and pickle some vegetables, and to make fruit juices and vinegar. Gallons of apple vinegar are now shipped into Florida while in almost every locality fruit suitable for vinegar making is available. The home demonstration agent asks the women to avoid wasting food.

Town women are asked to keep a cow or to buy sufficient milk so each child may have a quart daily, keep 10 pullets for laying eggs, have a garden, and do their share in food preservation and conservation.

Boys' Young Sow Makes Net Profit of $385 in Less Than Twelve Months

Three hundred and eighty-five dollars in less than a year—that's the clear profit a young sow gave the Van Dorn boys—twins—who live in Harris County, Tex. Theorists in farm management and the like might figure up a pretty big bill of costs against the sow, to be deducted from the profit she has made, but the Van Dorn twins know that such figures would not tell the truth, because they've got the money in their pockets—or they did have it.

The sow and her progeny did eat 16 bushels of corn, worth $24, and they did range over 5 acres of pasture, considered to be worth $25. These two items, a total of $49, have already been charged to the sow, deducted from her gross revenue of $434. The remaining $385 is clear profit, because the rest of the feed consisted of slop and surplus milk that would have been thrown away had there been no pigs, and peanuts and sweet potatoes gleaned by rooting the patches after the crops had been harvested as carefully as possible.

A Chamber of Commerce Pig.

The sow, as a pig, was furnished to the twin boys of W. F. Van Dorn of the Pasadena neighborhood by the Agricultural Department of the Chamber of Commerce of Houston, Tex. She farrowed her first litter of pigs April 4, 1918. One died and two were given in payment for the sow. The other four were grown, fattened and killed to furnish the family supply of pork and lard. Another litter of six pigs came later in the year and are now on the farm—good-sized shotes in first-class condition. The sow will farrow a third litter of pigs before long. The account now stands this way:

The original sow, $60; six shotes, $60; 800 pounds of pork, $224; 25 gallons of lard, $90. These four items make a total of $434 from which a deduction of $49 is to be made for corn and pasture.

Those figures prove that hog raising on the farms of Harris County, Tex., is profitable. But the caution to be written at the bottom of the story is: Do not carry figures too far. Making figures in 'rithmetic fashion, you would have this: If 1 sow makes a profit of $385, 100 sows would make a profit of $38,500. That is perfectly good arithmetic, but it is not good farming.

Where the Profit Lies.

The big profit in hog raising on southern farms, the specialists of the United States Department of Agriculture point out, is made where the farm family keeps enough hogs to consume all the waste products, to convert into money the things that would otherwise be lost, and that can be kept on a minimum of bought or stored feed. Every dollar got out of that number of hogs is practically clear profit. Beyond that point the profit dwindles.

The number of hogs that can be profitably kept is, of course, a matter that each farm family must determine for itself. In some cases it may be one sow. In others it may be six or a dozen or any number of sows. On every farm there is some waste that pigs could convert into money. On most farms it probably amounts to at least as much as on the Van Dorn farm at Pasadena, where, in one year, the twin boys made one sow produce enough revenue to buy a whole new set of furniture for mother or to keep sister in college for a year.

MAKE FARM FEED FAMILY, ADVICE TO SOUTHERN STATES

(*Continued from page 1.*)

months, which should be bred to freshen about six months apart, will provide the milk, butter, and cottage cheese rations, in addition to raising a couple of calves each year which may be sold for veal or matured as future recruits for the dairy products squad. In one southern community a beef club of 15 farmers has been formed. Each member of the club agrees to grow, fatten, and dress at least one beef animal every 15 months for distribution among the members of the club. This simple scheme provides an abundant supply of fresh beef at times when it is needed.

One Pig Per Person.

To supply the pork and pork products for the average farm family requires one pig for each adult person. Unless the family is very small it will be profitable to keep one brood sow to produce these pigs. It is generally practicable to raise the pigs intended for the home pork supply on waste products of the kitchen, garden, farm, and orchard.

A farm flock of between 30 and 50 fowls, exclusive of young chickens, will provide eggs and poultry for the family table as well as a surplus which can be exchanged at the store for groceries. These fowls can rustle a living around the farm with the supplementary feeding of table scraps and some grain during the winter. It is good management, however, to raise about 2 acres of corn and 2 acres of oats for the hens.

To produce the necessary feed for the family live stock, considering average yields, will require corn fodder from 9 acres, 5½ acres corn for grain, cottonseed meal from the seed of the 6¼ acres of cotton, 3 acres of cowpeas, 2 acres of oats, and 1½ acres of oat hay, as well as 5 acres of good Bermuda grass or other local pasturage. It is well also to provide 2 acres of rye, corn, and sorghum for emergency soiling purposes in case the grass gets short.

NEW PUBLICATIONS.

The following publications were issued by the United States Department of Agriculture during the week ended February 15, 1919:

Effect of Grazing upon Aspen Reproduction. (Professional Paper) Department Bulletin 741.

Wart of Potatoes: A Disease New to the United States. Bureau of Plant Industry; C., T., and F. C. D. Circular 6.

Canning, Preserving, Pickling. Office of Extension Work South, S. R. S. Doc. 22.

Use of Poultry Club Products, Office of Extension Work South, S. R. S. Doc. 91.

Gardening Instructions for Club Members. Office of Extension Work South, S. R. S. Doc. 92.

Berry Culture. Office of Extension Work South, S. R. S. Doc. 93.

Safe Farming in the Southern States in 1919. Office of Extension Work South, S. R. S. Doc. 96.

Directions for Home Canning in Tin and Mechanical Sealing. Office of Extension Work North and West, S. R. S. Doc. 97, Circular 17.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WORTH IN COTTON SEED.

Cotton seed was worth to farmers a third of a billion dollars for the crop of 1918–19 and also for the crop of the preceding year, both at war-time prices. Whether the price is high or low, the total value of the cottonseed crop bears an approximately uniform ratio to the value of the cotton lint of the same year, and this is about one-fifth. What years ago was a waste and a burden to the producer and to the ginner adds one-fifth to the price a pound of lint and to the total value of the lint crop—2 cents a pound when lint is at 10 cents, to 5 cents when it is at 25 cents.

Clover and Timothy Make One-Half of Hay Grown in United States

More than one-half the hay made in this country is of clover and timothy. Of the total of all varieties of hay, clover is 14.9 per cent, timothy is 18.1 per cent, and the two combined in the same crop are 18.3 per cent. Clover and timothy mixed constituted the old-time ideal hay, and the habit of raising timothy still persists in high degree, although this grass is not eminently nutritious.

A recent investigation by the Bureau of Crop Estimates of the United States Department of Agriculture finds that more than three-quarters of the hay in most of the Northern States east of the longitude of western Iowa is of clover and timothy, raised singly and in combination. Among the States with high fractions are Maine with 86 per cent; Pennsylvania, Maryland, and Michigan, each 88 per cent; Ohio and Indiana, each 92 per cent; and Iowa, 86 per cent.

Alfalfa makes one-seventh of the hay and is localized west of the longitude of western Iowa but not including Texas. Nearly every State outside of that area produces at least a little of this hay. Among the States in which alfalfa makes the chief variety of hay are Arizona and Utah, each with 65 per cent; Wyoming, 60 per cent; Colorado, 57 per cent; Nevada, 55 per cent; Idaho, 49 per cent; New Mexico, 47 per cent; Montana, 43 per cent; Kansas, 42 per cent; California, 39 per cent; Oklahoma, 37 per cent; and Nebraska, 34 per cent, but in the last State wild hay is one-half of the crop.

Grains cut green for hay constitute 5.9 per cent of the hay of the United States and this is especially the practice on the Pacific Coast, in Idaho, Arizona, New Mexico, Oklahoma, Texas, Alabama, Georgia, and South Carolina. Millet hay is noticeable in North Dakota and Tennessee, where 14 and 11 per cent, respectively, of all hay is of this kind. The fraction for the United States is 3.2 per cent.

Various "tame" and wild grasses, usually not including much timothy, make the bulk of the hay of the Southern States, and wild-grass hay is prominent in Minnesota and in the special alfalfa area.

WOOL STOCKS ON DECEMBER 31, 1918

Dealers and manufacturers reported 213,600,000 pounds of wool, grease equivalent, held by them December 31, 1918. Stocks in pounds by classes as given in the Bureau of Markets, United States Department of Agriculture, report were: Grease, 140,524,763; scoured, 26,163,548; pulled, 15,447,429; tops, 11,817,192; and noils, 17,489,814.

The wool-purchasing quartermaster reports on December 28, 1918, that the total stocks of wool in the Government's possession, spot and transit, was 313,746,502 pounds, and estimates the quantity of wool in dealers' hands not yet billed to the Government at 70,000,000 pounds. Total manufacturers' stocks of grease, scoured, and pulled wool reported to the Bureau of Markets were 77,650,921 pounds. This amount, added to the figures on Government stocks, gives a total of grease, scoured, and pulled wool in the United States on December 31 of approximately 460,000,000 pounds.

The wool clip of this country in 1918 is reckoned at almost exactly 300,000,000 pounds, and the mean price to producers at 58 cents, or about 11 cents higher than in 1917.

LARGE INCREASES SHOWN IN COLD-STORAGE HOLDINGS

Increased cold-storage stocks of frozen beef, frozen lamb and mutton, frozen pork, dry salt and pickled pork, and miscellaneous meats, and decreased holdings of cured beef on February 1, 1919, as compared to a year ago, are shown by the monthly report of the Bureau of Markets, issued from the Department of Agriculture to-day.

Stocks of creamery butter increased 40.8 per cent, compared to a year ago, while some kinds of cheese show increases and others show decreases on February 1 this year.

Frozen beef stocks on February 1 were reported as 288,851,476 pounds, an increase over last year at the same time of 6.4 per cent. Cured beef figures were 36,293,690 pounds, a decrease of 2.1 per cent. Lamb and mutton holdings increased 93.7 per cent, compared to a year ago, and on February 1, 1919, were 11,505,380 pounds. Totals for frozen pork were 102,809,793 pounds, an increase of 88.6 per cent. Dry salt pork totals were 457,013,785 pounds, an increase of 30.8 per cent. Pickled pork increased 22.1 per cent, the total in storage on February 1 of this year being 392,373,140 pounds. Miscellaneous meats were 137,635,631 pounds, an increase of 71.2 per cent. Lard holdings increased 119.2 per cent over last year to 135,532,426 pounds.

There were 36,815,793 pounds of creamery butter in storage on February 1 this year, including stocks held by the Army, Navy, and allied commission. This represents an increase of 40.8 per cent over February 1 last year. Only 15,728,959 pounds of American cheese were in storage on February 1, 1919, a decrease from last year of 75.4 per cent. Holdings of Swiss cheese increased 55.2 per cent, compared to last year, and on February 1 amounted to 2,316,210 pounds. Limburger, cream, and Neufchatel cheese decreased about 25 per cent, while increases of 37.2 per cent for brick and munster, 100 per cent for cottage, pot, and bakers, and 597 per cent for "all other varieties" of cheese were reported.

Case eggs in storage showed a decrease of 20.7 per cent, and on February 1 this year were 127,363 cases. Frozen eggs decreased 37 per cent, the total being given as 7,681,880 pounds on February 1 this year.

There were 1,626,713 barrels of apples in cold storage on February 1 this year and 4,143,542 boxes, a decrease of 24.7 per cent for apples compared to a year ago.

CIVIL-SERVICE EXAMINATION.

The United States Civil Service Commission announces an open competitive examination for scientific assistant, for both men and women, on April 22 and 23, 1919, to fill vacancies in the Department of Agriculture, for duty in Washington, D. C., or in the field. The usual entrance salary ranges from $1,200 to $1,400 a year, but persons showing in the examination that they are unusually qualified are occasionally appointed at higher salaries, not to exceed $1,800 a year.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Banding the trunks and larger limbs of apple trees with strips of cloth has been practiced extensively for the control of the codling moth. This method consists of fastening a band of cloth around the trunk, from which the loose bark has been removed. Usually a band made from burlap, folded to three thicknesses 4 to 8 inches wide, is used. The codling moth larvæ, or worms, crawl beneath the band to form their cocoons and should be destroyed by hand at intervals of 10 days throughout the season.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Potato Beetles Rode "Blind Baggage."

Idaho has kept practically clear of the Colorado potato beetle, yet a car of potatoes from Idaho Falls reached Los Angeles infested with the beetle. The California authorities notified the Idaho authorities, who resented the imputation that potato beetles had come out of Idaho. An investigation by Frederick Maskew, State quarantine officer of California and a collaborator of the United States Department of Agriculture, disclosed these facts: The car previously had been loaded with potatoes in Colorado, the home of the beetle. The potatoes were delivered in Oklahoma. The car went as an "empty" to Kansas City, then was routed to Granger, Wyo., then to Idaho Falls, where it was again loaded with potatoes and sent to Les Angeles. The potato beetles evidently remained in the car during the entire movement and infested the second loading of potatoes. This is regarded as an illustration of how railway cars used for hauling vegetables, fruit, and other plant products are the means of distributing noxious insects, and the United States Department of Agriculture is taking steps to secure some action through railroad authorities looking to the cleaning of all such cars at the point of unloading.

Department Sells Potash to Farm Bureau.

A carload of kelp potash, produced at the United States Department of Agriculture's experimental plant at Summerland, Cal., was recently sold by the department to the Nassau (N. Y.) County Farm Bureau, and has been delivered to the president of the association, Elwood B. Titus, at Mineola, Long Island. The car contained about 74,000 pounds of 33½ per cent material and was sold at $4.25 per unit, or $142 a ton. Nassau County is one of the large truck-growing counties of Long Island, and the farm bureau will probably take another carload of potash from the Summerland plant. According to an announcement issued recently by the War Trade Board, no European potash will be available before June, 1919. Therefore, reliance will have to be placed entirely on the American output for this spring. The output of the experimental kelp plant of the Department of Agriculture is not large enough to go a great way toward meeting the needs. But farmers' organizations or farmers who are in position to buy potash in carload lots can secure it from some concerns at a reduction from the retail price at present quoted. The Bureau of Soils, Department of Agriculture, will furnish a list of American potash producers on application.

Trucks Not Profitable on General Farms.

A preliminary study toward determining whether or not a motor truck as part of the farm equipment would be profitable in the corn-belt States, conducted by the United States Department of Agriculture, indicates that under present conditions the purchase of a truck is not warranted on the ordinary grain and livestock farm. Only as it makes possible the elimination of some horses is the practice profitable. On 200 farms stocked, ranging in size from 100 acres to nearly a section, one man and team do all the hauling necessary to market produce in 30 days and the work is so distributed throughout the year that the use of the truck would not make possible the sale of any horses. Farmers within reach by motor truck of large cities where better prices obtain for live stock and possibly grain might be justified in buying a truck, but even in such cases it is probable that hiring the hauling done by a custom truck owner would be more economical. With regard to truck farms, the situation is somewhat different. Where produce is taken to market on an average of two or three times a week throughout the year the use of a truck makes it possible to get on with fewer horses. This makes the use of a truck more desirable than on general farms.

Cow Testing "Makes Good."

That cow-testing associations are successful is shown by the fact that three associations have been organized by members of the county farm bureau in Lake County, Ill., during the past 18 months. At present these three associations have 1,430 cows on test. There are 17 similar organizations in Illinois and 353 in the United States.

The report of the tester of Association No. 2 for the period ending November 1, 1918, shows that 24 herds were tested during the year; that of the 495 cows on test, 260 finished a complete record, and 135 were sold for beef because they were not profitable. The average production per cow of the entire association was 7,473 pounds of milk and 282.4 pounds of butter fat. The average test was 3.78 per cent. The market value of milk per cow was $209, value of feed $113, leaving a net return over feed of $96 a cow. Forty-five pure-bred cows were purchased during the year, and every member but one used a pure-bred bull.

Seeks Outlet for Brewers' Rice.

Rice mills and other large holders of brewers' rice have appealed to the Bureau of Markets of the United States Department of Agriculture to find an outlet or new uses, through investigations, for their stocks which are accumulating because of the approach of national prohibition. Although such rice might be made into rice flour, dealers and mills report a decreased demand for rice flour since the restrictions on the use of wheat flour were removed by the Food Administration, and doubt whether the making of additional rice flour would be profitable. In addition to the stocks of brewers' rice there are also large holdings of low-grade rice and screenings which are at present unmarketable. The department is giving attention to the problem.

Food Products Inspected at 45 Markets.

The food products inspection service of the Bureau of Markets, United States Department of Agriculture, has been extended until it now covers 45 large receiving markets. As shippers and receivers become acquainted with the service, which supplies a neutral inspection for perishables, the condition of shipments improves, owing to better packing and loading of cars, while the operation of the service has tended to prevent loss through delays in unloading cars. Although as first established the service received applications only from shippers, recent legislation broadens its work and applications for inspection are now received from shippers, receivers, dealers,

and other interested persons, a nominal fee being charged in each instance.

Among commendations of the inspection service received from farmers' and shippers' organizations is the indorsement of the American Fruit and Vegetable Shippers' Association in a resolution passed at a recent convention.

The Airplane in Agriculture.

In connection with scouting and other survey work in Texas, the United States Department of Agriculture is putting the airplane to its first practical application in agriculture. A try-out of this method of survey was made last year along the Trinity River and resulted in the discovery of several outlaw cotton fields in heavy timber, which had previously escaped detection. This year the airplane is to be used more extensively. It has been found a valuable aid in pink bollworm work, as it makes possible the easy mapping, by means of photographs, of the quarantined territory, and facilitates the inspection work in forested areas, especially in such long stretches of country as the valley of the Rio Grande and its tributaries.

Pigs Take 100-Mile Auto Ride.

New Mexico is getting pure-bred pigs by automobile. Four, last summer, had a ride of nearly 100 miles into the heart of New Mexico. The county agricultural agent and the boys' and girls' club leader arranged this "personally conducted" tour for the Duroc-Jersey, so the pig club members of Monticello should not be disappointed. Pig clubs are popular institutions in New Mexico and the keeping of pure-bred animals is being encouraged by the club leaders and the county agents. In Sierra County, where before the club work not one pure-bred hog was to be found, 20 were distributed in a few weeks last summer. The other 16 had auto rides of nearly as great length through the mountain valleys of the county as the first four, for some of the western counties are as large as a whole State in the East and distribution presents difficulties which only an auto can solve. The pigs are not to reach the block this year but are to remain to increase the pure-bred family of the county.

Guards Against Pests at World's Crossroads.

H. F. Dietz, an entomologist of the United States Department of Agriculture who for some time has been assigned to duty in the Panama Canal Zone, has recently been in Washington for conference with other members of the department. He has returned to the Canal Zone. The necessity for constantly policing this field is that it is the crossroads of the world and the possibility is always imminent of new and injurious insects gaining a foothold there and coming thence to the United States. James Zetsk, entomologist of the Canal Zone, was in charge of the department's interests while Mr. Dietz was away.

Alien Plant Enemies as Stowaways.

For a long time a great many ships coming from Europe into the port of New York have been dumping earth ballast along the shores of East River, Hudson River, and elsewhere around the bay. This is a source of risk of the entry of undesirable plants and plant pests, in the opinion of the United States Department of Agriculture, and an inquiry has been started to determine the extent of this risk and to provide safeguards against it. There is a possibility of the introduction of soil-infecting diseases, injurious nematodes, and hibernating insects, any of which, unless preventive measures were taken, might spread over the country or considerable parts of it.

Pure-Bred Stock Adds to Sales.

When buyers of breeding cattle come to the county agent of Waukesha County, Wis., one of the first questions they ask of the prospective seller is, "Does he use a pure-bred bull?" Upon the answer to this question (the county agent informs the United States Department of Agriculture) depends the farmer's opportunity to make a sale. If the sire is not a pure bred, little chance does that farmer have of selling stock, no matter how good it looks, he adds. The county agent reports that approximately 20 carloads of pure-bred Guernseys and 60 of grades of the same breed were shipped from the county last year. During the same period 25 cars of pure-bred Holsteins and 75 of grades, and several cars of Jerseys were shipped, also. As a result of the success which owners of pure-bred sires have attained an effort is being made to clear the county of scrubs.

Extra Price for Extra Butter.

That it pays to learn how to make good butter and to market only that kind is the experience hundreds of Arkansas housewives have had during the past year. The home-demonstration agents of the United States Department of Agriculture and the State Agricultural College, undertook a campaign which had for its object the instruction of farmers' wives in the art of making A1 butter. Experts went to every part of the State to coach the butter makers, and farmers' wives flocked to the demonstrations. To use special cartons with the 4-H brand was the reward given those who learned how to make the perfect variety. Butter put up in these 4-H cartons sells from 10 cents to 15 cents higher than the ordinary kind, for the consumers of the State have been taught what the brand stands for, and they are wiling to pay an extra price for extra quality. The average increase of price obtained by those who learned to make butter which satisfied the requirements of the home-demonstration agent was 10½ cents a pound. The makers of superfine cottage cheese in the State are allowed to use a very similar package.

Giant Fumigation Houses Completed.

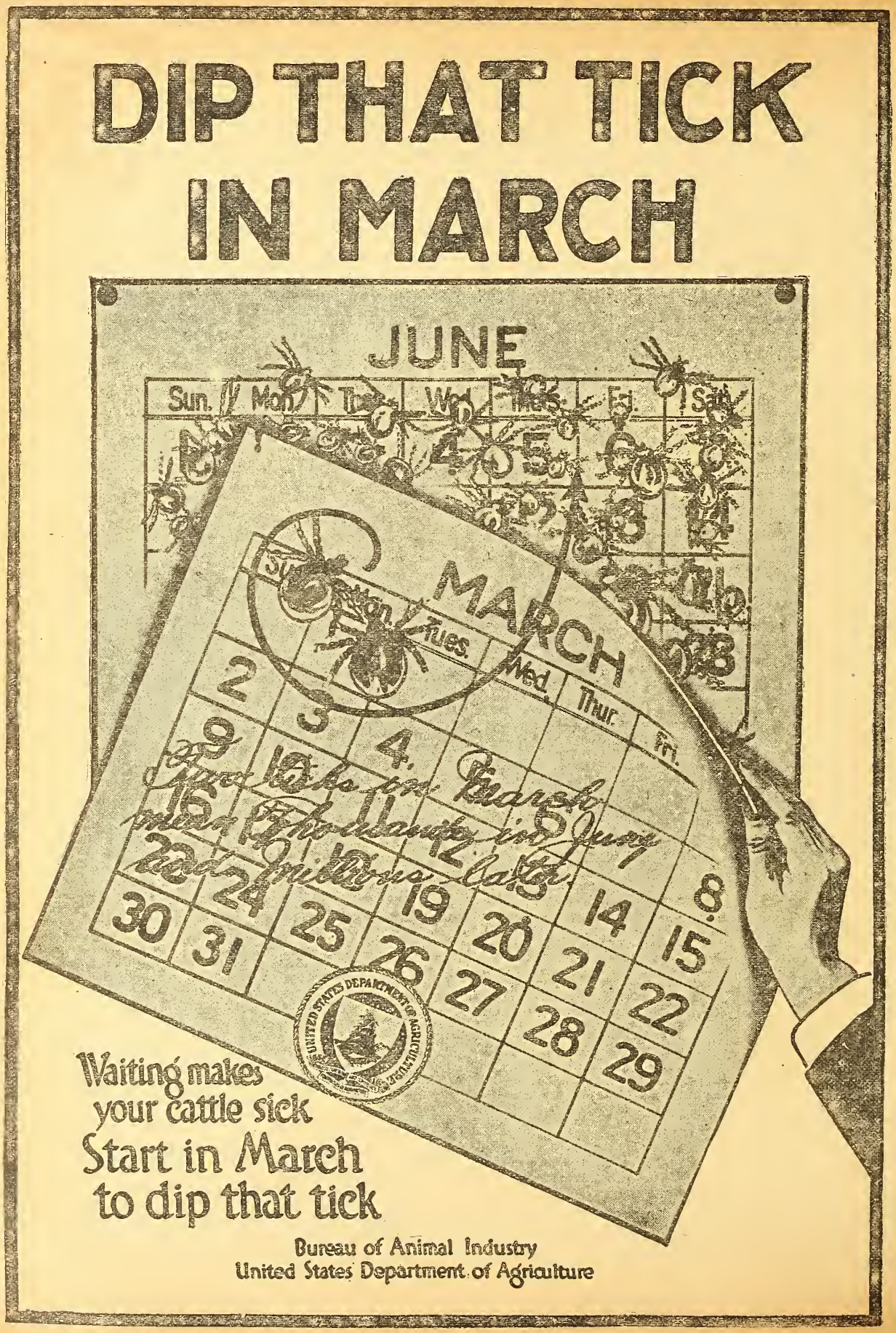
Fumigation houses, erected on the Mexican border by the United States Department of Agriculture to help prevent further introductions of the pink bollworm of cotton from Mexico, are substantially completed and will be placed in operation in a short time. These fumigation houses, some of which will take 15 railway freight cars at one time, probably represent the largest fumigation operations ever undertaken. They are established at five different points from Brownsville to El Paso.

No Gypsy Moths Went West.

Entomologists of the United States Department of Agriculture who last fall began an examination of the cranberry bogs of Michigan, Wisconsin, and the Pacific coast which have received shipments of cranberry vines from New England, report that they find no evidence of gypsy-moth infestations from such shipments. It had been feared that the moth had been carried on the vines to the western bogs. Determination of the fact was necessary in order to know what control measures should be undertaken. In that connection the department is making tests to determine both the resistance of cranberry vines to intensive fumigation and the strength of fumigation necessary to destroy the eggs of the gypsy moth.

HAIL! KING APPLE!

The apple is the king of fruits in value of crop as well as in the estimation of apple lovers. For the apple crop of 1918 a value of $230,000,000 has been estimated, or nearly three-eighths of the value of all fruits.



WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — MARCH 5, 1919 — No. 31

GOOD CREDIT IS PRIME NEED OF FARMERS, BANKERS HEAR

Assistant Secretary Ousley Points Out Field for Financial Service

Agriculture Offers Sure Returns in Long Run and is Sound Basis of Money Lending, He Tells Conference in Capital

Agricultural credit properly applied is the soundest credit, and yet agricultural credit has received the least thought of financiers, said Clarence Ousley, Assistant Secretary of Agriculture in welcoming to its conference in Washington February 26 the agricultural committee of the American Bankers' Association. No greater public service, he said, can be rendered to the United States and to the general welfare of all the people than mastery of the problem and leadership in work toward supplying the prime need of farmers.

"For my part, and I am sure for the other officers of the Department of Agriculture, I assure you that you are not only welcome, but we are grateful for your coming," said Mr. Ousley. "The Department of Agriculture not only endeavors to disseminate information, but it seeks information, and especially it seeks counsel in order that it may wisely discharge its great responsibilities. While we hope to give you something, we hope also to receive much.

Agriculture Recognized

"It is significant of a new state of mind among financiers that representatives of the American Bankers' Association and of the several State associations should meet in Washington in order to get into more intimate touch with the Department of Agriculture. It signifies first, that agriculture is a fundamental thing which concerns everybody. Second, that it deserves in the common interest the best thought of the wisest men in all vocations. Third, that it is in special need of the aid and counsel which experts in finance are qualified to give.

"If I were called upon to name one factor in agriculture which has been most neglected I would say it is the factor of finance. I mean not only capital and the wise use of capital, but I mean also, and more particularly, the systematic and economical financial accommodation which has been worked out for nearly every other business, but which is sadly lacking in the agricultural business."

HALF BILLION FOR ROADS.

Expenditures for highway work in the United States this year are likely to amount to a half billion dollars, or even more, according to a recent statement by officials of the Bureau of Public Roads, United States Department of Agriculture. On reports received from State highway departments, the bureau estimates the expenditures for roads and bridges at $385,000,000, or $110,000,000 more than the average expenditures for 1916 and 1917. This estimate does not include, however, the additional Federal funds which will be available if the amendment to the Post Office appropriation bill, making $50,000,000 immediately available and $75,000,000 more on July 1, is enacted into law.

Estimated work under control of the State highway departments includes $45,000,000 for the construction of 5,000 miles of road now under contract, $30,000,000 for 4,000 miles of construction ready for contract, $100,000,000 for 16,000 miles of contemplated construction, and $60,000,000 for maintenance of 200,000 miles. Expenditures of counties, townships, and local road districts are estimated at $100,000,000 for the construction of 15,000 miles and $50,000,000 for maintenance of 100,000 miles.

"Somehow those engaged in farming have in large part neglected the business side of their business. It almost seems sometimes that the talent and the taste for production, for tilling the soil, and caring for animals are incompatible with the faculties which make for business success. This is not to say that there are no successful farmers, for there are many, nor that agriculture is not an inviting business, for it never offered such attractive opportunities to the man who is content to acquire a competence as distinguished from the man whose greed is never satisfied.

(*Continued on page 9.*)

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FORECASTS SUCCESS IN FIGHT AGAINST DISEASES OF ANIMALS

Chief of Animal Industry Sees a Brighter Day Dawning

Asks Continued Support of Business Interests in Campaigns on Maladies; Cutting Down Big Annual Loss

"Recent results in the control of animal diseases give a vision of a new day in which the American stock raiser, freed from the ravages of some of his foes and with others brought under subjection, can pursue his calling in greater security and increase his contributions toward supplying the growing needs of the world."

That is the encouraging outlook for American farmers in fighting an annual preventable disease loss of $175,000,000, as described to-day by Dr. J. R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture, before the agricultural committee of the American Bankers' Association in Washington, D. C., February 27.

Appreciates Help of Bankers

After expressing appreciation for the help of American bankers and other business men in fighting animal diseases, Dr. Mohler said: "Through the joint efforts of Federal and State agencies and of stockmen generally, spurred on by the unusual requirements of the present, we are pressing more vigorously than ever before our assaults against enemies that have too long preyed upon our flocks and herds."

Dr. Mohler reviewed the status of the principal live-stock diseases that have attacked or are attacking domestic animals in this country, expressing hope that all of them will be either entirely eliminated or brought under such control that their ravages will be negligible as compared with the present great annual losses, estimated to have been $212,000,000 in the single year 1914.

The campaigns for increased production have yielded especially fruitful results with regard to pigs and poultry.

(*Continued on page 7.*)

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions by the U. S. Department of Agriculture in Anticipation of Farming Problems During the Next Few Weeks

MARCH						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

NORTH AND WEST

By the Office of Extension Work North and West

PREPARE TO SAVE IRRIGATION WATER

The light snows during the past winter in the mountains in many sections of the West mean that there will be a shortage of water in many irrigated sections next July and August. Irrigation companies and water users during the months of March and April can do much that will enable them to make the low flow of the streams next July cover many hundred more acres than in the past. A few days spent now in cleaning and strengthening the banks of main ditches and in repairing flumes and headgates will in many cases prevent breaks later in the season. A gopher-poisoning campaign covering the lands adjoining the ditches is a good insurance against breaks. A little extra time spent in cleaning field ditches and leveling fields will enable crops to be irrigated with much less water, labor, and trouble next summer when both water and labor are scarce. An agreement between water users or company regulations requiring the use of larger irrigating heads in rotation rather than continuous streams, as are now so commonly used, will enable fields to be irrigated quicker, easier, and better with less water and labor. Hearty cooperation among water users is a prime essential for a satisfactory operation of any irrigation system and for the most economical use of water. Each water user in a cooperative or other irrigation company should make himself a committee of one at the company meeting this spring to see that everything possible is done by his company and himself to make the best possible use of the company's appropriation during the year.

CONTROLLING INSECT PESTS

During the month of March much may be accomplished in the control of certain insects affecting cereal and forage crops, particularly if the ground be free from snow. Many of these insects spend the winter in rubbish, in fence corners, along hedge rows, and in accumulations of dried vegetation. For this reason, these should be thoroughly cleaned up and burned in order to kill the insects hiding therein.

In the upper Mississippi Basin west of the river grasshopper eggs are frequently laid in large numbers along ditch banks, in check rows, and in other limited uncultivated areas where they may be destroyed by disking thoroughly during the winter months. This method should be followed for destroying the eggs where the ground is not frozen too hard to interfere with the practice.

MAINTAIN THE BARLEY ACREAGE

The coming season is likely to be a critical one in barley culture in the Northern States. Barley has not been grown nearly so widely as the yield per acre in pounds of feed would justify, and it is feared that the loss of the milling and brewing market may reduce the acreage still more. From the standpoint of farm economy, the barley acreage in the Northern States should not be reduced below the need for farm feed. Barley is a good feed grain for all classes of live stock. In the Northern Statees it yields more pounds of feed to the acre than any of the other small grains. It yields best on well-drained soils. It does not respond well on lands that are wet or lands that are sandy. On favorable soils in the Northern States the farmer would do well to maintain his barley acreage, especially if he has live stock to which he may feed it. It will give a generous return in feed and at the same time fit into almost any rotation. It also lends itself readily to the management of the farm, as in many locations it can be seeded later than spring wheat and thus use farm labor to good advantage.

SOW OATS EARLY

To obtain maximum yields, sow oats as early as it is possible to get land in satisfactory condition. This crop grows best in cool weather, and frequently is injured considerably by a few hot days when approaching maturity, and light frosts or even severe freezes after the seed is sown rarely injure it.

The date of seeding naturally depends on the locality and season. In the corn belt the best date is usually from about March 25 to April 15. In the more north-

(*Continued on page 12.*)

IN THE SOUTH.

By the Office of Extension Work South

DON'T FORGET THE GARDEN

Don't forget to include the home garden as one of your main lines of work the coming season. If you have not already made your plans for a garden do so at once. Select, fertilize, and prepare your ground as soon as possible. The seed supply should also be looked after and ordered at the earliest possible date, in order to prevent disappointments and delays in planting. See that the garden includes a good variety of vegetables, and also plant it so that it will continue to work for you and supply your table with fresh vegetables throughout the entire summer and fall. Too many gardens are abandoned after the first crop of vegetables is harvested in the spring.

If you have not had experience in gardening consult your county agent as to best adapted vegetables, varieties, and for other advice.

GIVE SWEET POTATOES MORE ATTENTION

The sweet potato crop of the South has increased wonderfully in importance during the past two years; in fact, it has always been one of the essential foods for local use. Too often it has been the habit to grow the crop in a careless manner, but careful methods of seed selection and planting the crop on good soil give returns that make the extra trouble well worth while.

If a special lot of seed was not picked out last year and carefully stored, now is the time to locate and save the best available. This seed should not be bedded until the ground is warm or, if it is desirable to start early plants, the seed should be placed in a hotbed and given careful attention until the plants are ready to set out.

Sweet potatoes respond to the use of fertilizers, especially well balanced commercial fertilizers mixed with the soil underneath the rows. Four hundred to 500 pounds to the acre has been found in some cases to almost double the crop. A great deal depends upon the way the plants start and if they are set when the soil is in the right condition and a little water poured in around each plant, they will start off promptly. The important

point is to begin now and select the best seed available.

The demand for sweet potatoes is increasing and new uses are being found for them every year. They are good human food and are worth growing for stock feed. Recently it has been found that a very fair grade of sirup can be made from surplus sweet potatoes. Give your sweet potato crop more attention.

REDUCING ROOT-KNOT

Some localities in the South have soils badly infested with nematodes. On such soils, if the winter cover crops—except grain—are allowed to grow until the ground has become warm in the spring they are liable to attack by the nematode or eelworm which lives in some of the light, sandy soils and causes root-knot of many crop plants and weeds. In practically all of the Southern States the nematode is inactive for several months in the winter, during which time it will not infect any crop that may be planted on the land. As the ground becomes warm, however, nematodes resume their activity and will then attack the roots of any susceptible plants growing in the soil. Not only will the roots of the cover crop be infested but they will permit the nematodes to propagate freely so that the subsequent crop on the land may be severely injured. It is, therefore, advisable to turn under as early as possible in the spring all cover crops—especially the clovers and vetches, which are subject to eelworm injury and which are planted on nematode-infested soil.

PLANT TREES IN FARM GULLIES

If the farm has places that are washing badly, the owners should lose no time in starting to reclaim them by planting trees or Bermuda grass.

In the Upper Piedmont, Mountain, and Mississippi Valley sections no other tree is so well adapted for planting in gullies as black (or "yellow") locust. It has a large root system, suckers freely from the root, grows rapidly, and makes one of the most lasting woods for fence posts. Small scions or seedlings from 1 to 2 feet high with roots should be set out in the spring on gully banks and over the gully bottoms in soil made loose by mattock, plow, or dynamite. A spacing of approximately 8 by 8 feet apart is advisable, taking advantage of naturally favorable situations and avoiding the middle of stream channels. The little trees can be dug up in locust thickets, or obtained from commercial nurseries.

For the dry, clayey soils of the Piedmont, the native shortleaf pine (*Pinus echinata*) is well adapted for stopping gully erosion. It is very frequently observed coming in naturally in such places, and even when young exerting a marked influence in holding the soil. When set out in gullies its growth is fairly rapid, and in a few years, it forms a complete protective cover. Young shortleaf pines are often found in great numbers in an old field recently turned out. They are much more vigorous than similar pines growing in the woods and wherever available should always be chosen for gully planting. Seedlings from 6 to 12 inches in height are of a very suitable size. In taking them up, it is important to loosen the soil carefully and break as few roots as possible. They should be placed at once in buckets containing water or wet sphagnum moss, and during the transplanting the roots should never be allowed to become dry.

After being set in place, the soil should be carefully and well firmed about the roots. A spacing of about 5 to 6 feet apart each way is recommended.

Other kinds of trees may be used for the same purpose of turning such waste lands into profitable parts of the farm. The Forest Service, United States Department of Agriculture, will furnish information on how to plant forest trees and lists of commercial dealers handling seed or seedlings of various trees suitable for gully planting.

CUT TIMBER FOR FENCE POSTS

In the spring months while the sap is flowing freely is the best time to peel the bark from small round timber for later treating for fence posts. A spade works well for this purpose, while in late fall or early winter when the sap is "down" it may be necessary to shave off the bark by using a drawknife, sharp hatchet, or ax. The small slender pines, from 5 to 7 inches on the stump, that are being crowded out by the larger or dominant trees make very suitable sizes of posts. Black gum, sweet gum, red oak, maple, honey locust, ailanthus, sycamore, and other woods take creosote well and are desirable for this use. Posts from 3 to 4 inches across the top are better for line posts than those from 4 to 6 inches, because they are less expensive to treat, and last as long or even longer than posts of larger size. Because the wood of large posts cracks or checks more readily better opportunity is afforded for the entrance of wood-rotting fungi. This also applies to the wood of tupelo, which has given poor results when treated.

The peeled posts should be piled in an open manner off the ground in a warm, dry place, and allowed to season for several months before being treated. This makes it important to cut the posts in the spring in order to have them in good condition for treating when the crops are laid by in midsummer.

CRIMSON CLOVER FOR EARLY PASTURE

Excepting rye, crimson clover is the earliest pasture available in the spring in the Middle Atlantic States from New Jersey to North Carolina. Crimson clover is grown mostly for soil improving and for hay, but it can well be used for pasture during the eight weeks from February 1 to April 1. If the clover is to be plowed under, it can be pastured as late as April 15, but if hay or a seed crop is to be secured the stock should be taken off two weeks earlier.

Crimson clover pasture is especially valuable for hogs and sheep, which relish this clover quite as much as they do red clover and alfalfa. It is highly valued by dairymen as a substitute for silage and as a means of obtaining green feed very early in the season. Many dairymen pasture their cows on crimson clover in order to save their silage for dry spells during the summer. An average acre of crimson clover furnishes day pasture for two or three cows and reduces the amount of silage that must be fed by about one-half.

Hogs, sheep, and light cattle can be run on upland pastures throughout the winter and early spring except when snow is on the ground. Heavy cattle must not be turned on the fields when the ground is soft, although crimson clover is not injured by trampling as much as permanent blue grass sod. Crimson clover is not as likely to cause bloating as other clovers, but cattle, and especially young cattle, should not be allowed to graze when the clover is covered with frost.

SEEDING CLOVER

Seeding of red and alsike clover will be general this month throughout all the clover sections. Broadcast seeding on winter grain may be done at any time and where the soil is dry enough it may be seeded with a drill. With clover seed as high in price as it is this year it will pay to be especially careful about the preparation of the seed bed. When the ground is still wet nothing can be done in the way of harrowing and preparing the seed bed, but wherever the ground gets dry enough to run a spike-tooth harrow across the rows of grain the seed should be harrowed in. This will not hurt the grain, especially if the teeth of the harrow are slanted backward. Wherever possible it will be advisable to seed with a drill as from 2 to 4 pounds less seed per acre will be required. With seed costing not far from 50 cents a pound a saving of this

sort will be an important item; further than that, a better stand is usually assured when the seed is drilled, especially when care is taken to see that the seed is put down about one-half inch deep. It is suggested that growers obtain from the Division of Publications of the Department of Agriculture a copy of Farmers' Bulletin No. 971, "The Control of the Clover-Flower Midge."

IMPROVE PERMANENT PASTURES

The next few months is the desirable time of the year for the improvement of pastures. Large areas of permanent pasture would respond to proper methods of improvement which might include the following:

Keep the pastures clean by cutting off brush, briars, and weeds. Large stumps, stones, and dead trees should also be removed.

Those areas used for pasture that that would permit harrowing and disking at the time of reseeding, applying lime, fertilizers, and manure, etc., may be greatly benefited. In some sections terracing may be practiced with satisfactory results.

The application of lime, acid phosphate, and manure can always be relied upon in most sections as a means of adding the necessary increased fertility.

Reseeding, particularly in bare spots, is to be recommended. White and Japan clover, bermuda, herds grass, carpet grass, and blue grass in favored sections are commonly used.

As a rule reseeded pastures should be lightly grazed the first year. At all times it is advisable to keep the cattle off the grass in the spring until well started. Closer grazing during the rest of the season may be practiced where this has been done. It is also advisable to turn cattle off the pasture earlier in the fall than is commonly practiced.

GIVE BREEDING COWS MORE FEED

Breeding cows that started into the winter in thin condition need extra care and liberal feeding at this time if they are to nourish their calves properly and maintain their own bodies satisfactorily. It is a mistaken idea of economy to starve through the winter a cow that is to drop a calf in March or April. Such practice not only reduces the vitality of the cow but dwarfs the growth of her offspring, because she is not able to nourish it properly.

The cow should be provided with a liberal amount of silage, or legume hay if no silage is available. A protein supplement in the form of velvet beans or cottonseed meal should be provided in addition to 2 or 3 pounds of grain. Corn stover or straw may also be used if available at this time of year.

SELECT BEEF BREEDING BULL NOW

It is now time to select the herd bull for breeding purposes during March and April. Those who did not make such provision last fall should not delay longer for best results. As a rule the herd bull should be secured several weeks previous to the breeding season. If the bull has been running with the breeding herd all winter, he should be given a stall and paddock by himself so that he may be better cared for and fed more liberally. Especially is this true if he is thin in condition. It is essential that the herd bull be in strong, vigorous condition.

COUNTY ORGANIZATION

During the past winter considerable effort has been made to complete the federation of county community clubs into country-wide organizations. The results of these efforts, judging from reports reaching the Department, have been very satisfactory.

One important thing to be borne in mind is that no organization will continue to exist that does not have some definite plan of work and some definite purpose to accomplish. It should be remembered, however, that too many activities may result in failure. A few well-defined policies or purposes successfully carried to conclusion will mean permanency and success for these organizations. Those responsible for the county organization should lay their plans well into the future, and keep interest in the various local clubs active. Road improvement, county agricultural fairs, rural telephone systems, improved or consolidated schools, vocational education, standardized cotton and corn for the county, improved breeds of live stock especially adapted to local conditions, cooperative marketing, public entertainments, and social welfare are some of the projects being undertaken by county organizations. It is not believed to be advisable for a county to undertake more than two or three of these at one time, at least not the first season.

Whatever is undertaken should be done well before new projects are launched. Get the movement well under way and it will be carried forward by its own momentum. The hard work will come at the start. After it is started all you will have to do will be to direct it into the proper channels.

POTATO WART MAY BREAK OUT IN NEW SPOTS; WATCH FOR IT

Known Infested Territory Comprises 27 Pennsylvania Mining Towns

Disease Thought to Have Come from Europe May Be Present But Unrecognized Elsewhere; How to Identify It

Wart, one of the most dangerous diseases of potatoes which has made its appearance in the United States, exists only in a limited section of Pennsylvania, according to the latest information obtained by the United States Department of Agriculture. The infested territory embraces 27 comparatively small mining towns. But experts of the department have given warning that the infestation may have reached other sections in the same way that it reached the Pennsylvania mining towns, and vigilance is urged to discover and report it, if it does exist elsewhere, as well as to guard against a possible spread of infestation.

The wart disease is thought to have been brought to Pennsylvania in 1912 in potatoes imported from Europe. The potato crop in the United States was short that year, and European potatoes are known to have gone to Pennsylvania and other places over the country where there was demand for a cheap supply. The discovery of the disease in Pennsylvania was made only last year and there is a possibility that it may be present but not yet recognized in other places.

Fighting Disease in Pennsylvania

Some of the Pennsylvania miners made plantings of the imported potatoes in their gardens, the soil became infested and the disease is now thoroughly established in them. It will be very difficult to eradicate except by ceasing to plant potatoes in these gardens for several years. The infested region is isolated and remote from agricultural sections. Both the Pennsylvania authorities and the United States Department of Agriculture have taken energetic steps to stamp out the infestation, and there is thought to be little danger of any spread of the disease from that section. If infestations have not occurred elsewhere, it is thought that the disease will be stamped out without further spread. Potato growers, potato buyers, market inspectors, and county agents are urged, however, to be on the lookout for it in all parts of the country.

Damage Always Severe

Wart disease is caused by a parasitic fungus, and manifests itself by warty out-

growths on the underground portions of the plant. The warts vary in size, and sometimes the entire tuber is converted into a spongy, warty mass. Many of the warted potatoes rot in the ground, but if the warts are small and the season favorable, the diseased tissues may dry down and the tubers keep through the winter.

Damage resulting from the wart varies, but it is always severe, and in some cases no edible potatoes at all can be grown. This was true in many of the Pennsylvania gardens last year. The fungus is carried over from year to year not only in the potato but in the soil. If the same ground is planted to potatoes year after year, the infestation becomes so severe that the growing of potatoes is rendered impossible. Where long-time rotation is practiced, comparatively little damage is done.

Once the fungus is established in the soil, there is no means of eradicating it except by preventing the growth of potatoes on the infested ground, and it is known to be able to retain its vitality through a period of at least eight years.

"Immune" Varieties Abroad

Potatoes can be successfully grown on badly infested soil only by the use of resistant varieties. While nothing has been done in this country toward the development of such varieties, some of the European countries which have been ravaged by the disease were forced to undertake it several years ago. A considerable measure of success has been attained, the English and Scotch authorities going so far as to refer to some of their varieties as immune. The English Government last year contracted for the growing of 1,000 acres of "immune" potatoes in Scotland, the seed from which will be available this spring.

Potato experts of the Department of Agriculture, however, are hopeful that it will not be necessary to resort to the use of resistant varieties in this country. It is not likely that they would be so productive as the varieties adapted and bred up to meet American conditions. It is regarded as probable that some of the standard varieties in this country would show resistant traits, but considerable time and effort would be necessary to determine this point.

If the disease is discovered, the warts and warty potatoes should be collected and destroyed. Diseased tubers should not be fed to stock without first being boiled. Soil known to be infested should be planted to other crops for at least eight years. No hope is held out for controlling the disease by treating infested soil with chemicals. Such attempts in other countries have not been successful.

CAMPAIGN DRIVES BARBERRY BACK AS HARBORER OF RUST

Legislation and Other Measures Are Removing Danger to Wheat

Iowa and Wisconsin Give Help in Law and Appropriations; Demonstrations Show Farmers How to Combat Spores

The common barberry is doomed—a vicarious sacrifice for American wheat. The campaign for black stem rust control, waged by the United States Department of Agriculture in cooperation with State agricultural colleges and other agencies, is rapidly uprooting the barberry bush, the only important means, except in low latitudes, by which the spores of wheat rust can start rust again in spring. Energetic interest is now aroused in most sections of the wheat belt and is expressing itself effectively in legislation and otherwise.

The Iowa Legislature recently passed, by unanimous vote of both houses, a bill making it illegal in that State to maintain, sell, give away, or import any of the rust-bearing varieties of barberry. At about the same time, the Wisconsin Legislature placed in its regular appropriation bill an item for barberry eradication.

Many Farmers See Demonstrations

Barberry demonstrations have accomplished much. At them farmers are given the benefit of ocular evidence. They are shown the rust spores under the miscroscope and are enabled to see just how they work to take money out of the farmer's pocket. At the Midwinter Crop Show, recently held in Denver, not less than 50,000 farmers were in attendance. Other meetings at which great numbers of farmers and others have recently seen barberry demonstrations were those of the Tri-State Grain and Stock Growers Association, Fargo, N. Dak.; the Northern Minnesota Develop-

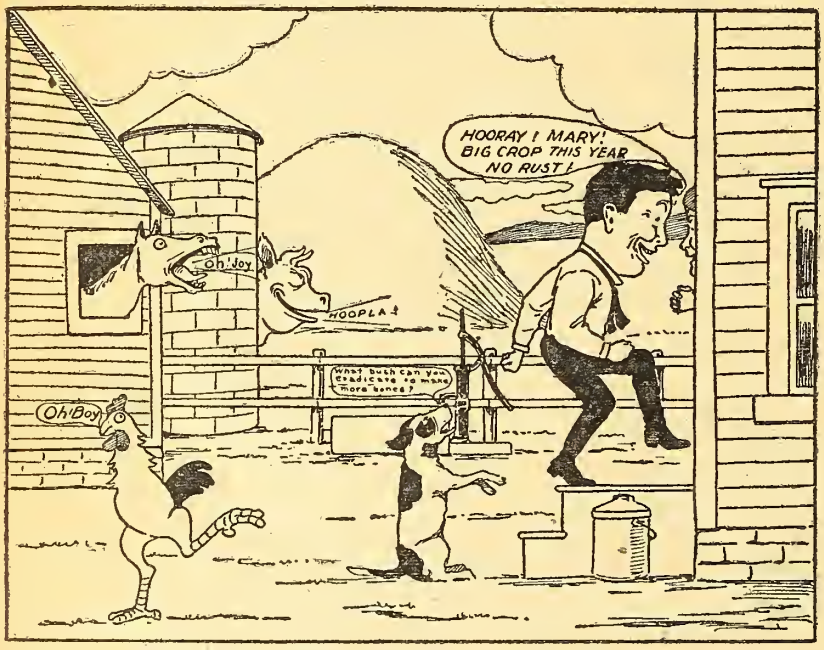
HOW THE BARBERRY GOES ROUND AND ROUND WITH WHEAT

ment Association, and the Minnesota State Horticultural Society.

It is significant that the South Dakota Horticultural Society, at its annual meeting, adopted resolutions strongly commending the barberry-eradication work. The president of the society, a commercial nurseryman, had himself destroyed all his barberry bushes. The Tristate Grain and Stock Growers' Convention and the Minnesota Red River Development Association adopted similar resolutions and sent copies to Congress and to the various State legislatures.

Bush Diggers Busy

The mild weather that has obtained throughout the winter has made it possible to do considerably more than was expected in digging out barberry bushes.



THE FARM HEARS BARBERRY-ERADICATION HAS BEEN SUCCESSFUL

The Department of Agriculture has squads of men at work in Michigan, Indiana, Iowa, Nebraska, and Colorado. Until after January 1 work was carried on in North Dakota and northern Minnesota.

The number of barberry bushes found is larger, perhaps, than was originally expected. This is partly due to the fact that many of them, from 30 to 50 years old, are so large that nobody had thought of them as barberry bushes. Many of them are from 10 to 12 feet high and of sufficient circumference, almost, to assume the dignity of trees. As an indication of the numbers in which barberry bushes have been found, there is cited the estimate of 25,000 dug up in Omaha, Nebr.

USE OF TESTED PLANS GIVES GOOD SWEET POTATO STORAGES

Department Discounts Extravagant Plans for "Patented" Houses

No Case of Failure Reported When Government Designs Are Properly Used; Tests Show Small Losses

Build your own sweet potato storage house according to tested Federal Government plans and thus save money and your potatoes, says the United States Department of Agriculture, in calling attention to the false claims made by concerns selling plans of "patented" houses.

Storage houses built under plans suggested by the Department of Agriculture have been in use in every Southern State for several years, and investigations have shown no case of failure of these houses when properly operated.

False Claims for "Patented" Houses

One of the favorite arguments said to be used by concerns selling "patented" storage-house plans is that sweet potatoes stored in Government-designed storage houses shrink from 16 to 20 per cent. This is characterized as false by the department, which points out that the necessary shrinkage during curing is about 10 per cent in weight, not bulk. This is required in order to cure the potatoes and keep them in good condition through the season. The surplus water must be driven off, and Government houses are designed to accomplish this by heating and ventilation.

Tests of Government planned sweet potato storage houses in many States have shown an average loss by decay of less than 2½ per cent for a season of 124 days, while at the department farm at Arlington, Va., this loss has been reduced to less than 1 per cent.

Claims that official tests of patented houses under the supervision of Government agents have shown remarkable results are discredited by the Department of Agriculture which states that no such tests have been made by any Federal Government agents. The department announces that it has no intention of interfering with legitimate business, but wishes to warn sweet potato growers to be on guard against extravagant claims made by the promoters of various types of "patented" storage houses. Growers are cautioned to investigate any plans offered which involve the payment of royalties.

Simple Plans Without Cost

Simple plans for storage houses based upon years of careful trial by the Department of Agriculture are available without cost to growers who intend to build, while it is stated that in some cases abandoned tenant houses or other buildings may be converted into successful storage houses. Plans for storage houses can be secured through county agents or by writing to the Bureau of Markets, 319 Connally Building, Atlanta, Ga., or Washington, D. C.

BUTTER HELD BY GOVERNMENT

Stocks of butter held in storage in the United States by the Army, Navy, and allied Governments on February 1, 1919, are reported to the Bureau of Markets as 13,796,954 pounds. The holdings a year ago were much smaller and are estimated roughly as 3,000,000 to 4,000,000 pounds. The total stocks of creamery butter in cold storage reported to the Bureau of Markets for the entire country for February 1, 1919, amounted to 36,815,793 pounds, as compared with 26,725,815 pounds last year. According to these figures the amounts of butter held in cold storage, aside from the holdings of the Army, Navy, and allied Governments, are substantially the same for the two years.

Vegetables can be grown between the trees in the home orchard, while the latter are small and do not shade the ground very much. Some of the early maturing vegetables may even be grown between the rows of strawberries during their first season.

FORECASTS SUCCESS IN FIGHT AGAINST DISEASES OF ANIMALS

(*Continued from page 1.*)

Indications are that the increase of 15 per cent in pork production for 1918 over 1917, as asked for by the Food Administration, has been realized, at least in weight if not in number of hogs. Poultry also shows a material increase and enormous quantities of eggs have been preserved by householders in the season of plenty for use in time of scarcity. Efforts have been made also to maintain and increase the output of dairy products by means of more and better cows, better methods and practices, and the extension of the industry.

After describing how American bankers and business men aided in stamping out the infection of foot-and-mouth disease in 1914, the most serious and extensive that has occurred in this country, Dr. Mohler gave attention to the campaigns in which the bureau is now engaged.

"The most striking example of what has been and what may be accomplished in the systematic stamping out of animal diseases is the campaign for the eradication of the southern cattle ticks," he said. In a little more than 10 years the area infested by these parasites has been reduced from 728,565 to 270,036 square miles, the area freed from ticks amounting to 458,529 square miles, or 63 per cent of the whole. Ticks are charged with direct losses calculated at $40,000,000 annually and with far greater indirect losses. The success of this work, said Dr. Mohler, not only stops the losses caused by the ticks, but enables the country to increase and extend the cattle industry, with increased production of meat and dairy products and with great benefit to general agriculture.

Fighting Cholera with Serum

"Hog cholera doubtless has caused heavier losses than any other single disease," declared the Federal official. The annual loss varies from year to year, but has been estimated to average $40,000,000. A few years ago, after many years of scientific research, the Bureau of Animal Industry succeeded in preparing a serum which would protect hogs against this disease. Field experiments have demonstrated that this serum gives practically absolute protection to hogs that already have not contracted the malady, while it greatly reduces the loss in herds in which the disease already has appeared. The country-wide death rate from hog cholera in 1917 was but 42 to the thousand, the lowest in 35 years and a wonderful contrast to the 144 to the thousand in 1897 and the 118 to the thousand in 1914.

"It would be a mistake, however, to suppose that these results herald the immediate extinction of hog cholera," said Dr. Mohler. "The immensity of the problem is such that it can be attacked successfully only when the States and local organizations are in a position to cooperate with the Federal Government. The first and most important steps have been taken already and the rest appears to be largely a matter of time and education."

The last territory infested with cattle scab was released from quarantine in April of 1918, and only 10 counties in California, 11 counties in Texas, and 3 parishes in Louisiana are now under quarantine for sheep scab. These diseases, said Dr. Mohler, at one time prevailed throughout most of the region west of the Mississippi River.

Combating Animal Tuberculosis

"Unlike most animal diseases," said Dr. Mohler, "tuberculosis attacks not only the property but the health of the country. Some progress has been made in the past in the suppression of this disease by the systematic use of tuberculin in testing dairy herds and by the elimination of the diseased animals, but it is only recently that such work has been taken up in a large way. In cooperation with State authorities and live-stock owners a campaign has been undertaken in 40 States along three lines—namely, the eradication of tuberculosis from herds of pure-bred cattle, the eradication of tuberculosis from circumscribed areas, and the eradication of tuberculosis from swine. In the beginning the efforts are being concentrated on the first project, since the pure-bred herds are the foundation of our breeding stock. A plan which was adopted in December, 1917, by the United States Live Stock Sanitary Association and by representatives of breeders' associations, and which was approved by the Bureau of Animal Industry, has been put into operation with the cooperation of a large number of herd owners. Through this plan there is being established a list of pure-bred herds from which persons may buy breeding stock with reasonable assurance that it is free from tuberculosis."

Discussing contagious abortion of cattle, which recently has become of such an alarming character as to demand great attention, Dr. Mohler said investigational work thus far carried on indicates that the introduction of the disease into abortion-free herds can be prevented for more successfully than its dissemination can be controlled once infection has established itself. He also said that sufficient progress has been made to show that losses resulting from influenza or shipping fever of horses can be greatly reduced; that the bureau for many years has been distributing a vaccine that has proved an efficient preventive against blackleg of cattle; that the bureau has recently improved the process of vaccinating against anthrax, making the operation successful and protecting the treated animal in a greater proportion of cases than formerly.

"Besides the administrative and field work," he said, "the Bureau of Animal Industry carries on scientific research work to learn the characteristics of contagious diseases and how to go about eradicating them. At present good progress is being made in working out methods of raising sheep free from stomach worms. The bureau also supervises vaccines, serums, and antitoxins prepared and sold by commercial firms for the treatment of domestic animals, and this official control has removed from the market many worthless and a few dangerous preparations."

CLEAN MILK UTENSILS THOROUGHLY

Need for thoroughly washing and sterilizing milk utensils is shown in a striking manner by investigations conducted by the U. S. Department of Agriculture on the principal sources of impurities in milk.

Among the results announced by the Federal dairy experts in Farmers' Bulletin 1019, "Straining Milk," are the following:

Strainer cloths containing 35,000,000 bacteria per square inch have been found in use on dairy farms.

The average strainer cloth, of which about 36 square inches is in contact with the milk, is likely to contain fully a billion bacteria if it is not washed and sterilized after each milking.

If the cloth is folded, the number of bacteria is likely to be still greater.

Milk produced under conditions where utensils were not sterile was found to contain more than 666,000 bacteria per cubic centimeter.

When all utensils were sterilized, the average bacterial count was only about 31,000 per cubic centimeter or less than one-twentieth as many.

Bacteria in milk are not necessarily injurious to health, but they reduce its keeping quality. Certain kinds of bacteria, if too numerous, also affect its palatability. For the production of clean milk the Department of Agriculture urges strict sanitation in every dairy operation.

Utensils and strainer cloths should be thoroughly washed with warm water and washing powder, then rinsed in clean water and sterilized by boiling or steaming for five minutes. After sterilization, the utensils, including pails, cans, strainers, and strainer cloths, should be hung in a clean place where they will be protected from flies and dust. Milk as it leaves the udder of healthy cows is clean and pure and may be kept so by following the methods outlined.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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DESTROY STALKS AND STUBBLE TO KILL CORNSTALK BORER

Corn growers in the Southeastern States should destroy all cornstalks and stubble remaining in the fields from the previous crop before spring planting time comes in order to kill the larger cornstalk borer which may be wintering there. This is the recommendation made by entomologists of the United States Department of Agriculture in Farmers' Bulletin 1025, soon to be published by the department. Cleaning up the cornfields and thus destroying the breeding places of the insect is probably the best remedy known for controlling this pest, the entomologists say, but to be most effective the work should be undertaken simultaneously by all the farmers of a locality.

The method employed to dispose of the stalks and stubble will depend largely on conditions in individual cases. If the stubble is cut low and the land is moderately heavy a thorough deep plowing may suffice, for a covering of an inch or two of well-settled soil is sufficient to prevent the escape of the moths of the borers. Bringing the stubble to the surface where it can dry and be exposed during winter will kill many of the larvæ, bu this method depends too much on the state of the weather to be entirely effective. By far the best plan is to remove the stubble from the field with a rake and burn it.

Rotation is one of the best general preventives of injury from the borer, the entomologists say. Experience has shown that where corn has followed itself upon the same field for two or more years the loss from the borer has been much greater than where an annual change has been practiced. Upon emerging in the spring the moths, finding themselves surrounded by young corn, commence egg laying at once, and escape the dangers encountered by searching for another field of corn.

This pest injures corn in two ways. In the early part of the season it eats small holes in the unfolding leaves of the corn, thus checking the plant's growth. The most serious form of injury chargeable to this pest, however, occurs late in the season, when the borer tunnels into the stalk near its base, so weakening the plant that any unusual strain such as a heavy wind will break it and destroy all chances of its maturing.

WILL SHOW GRAIN GRADING AT CONVENTION OF FARMERS

Wheat and shelled corn grading under Federal standards will be explained and demonstrated at the Farmers Grain Dealers Association of North Dakota meeting at Minot, March 4 to 6. Visitors will see shelled corn and wheat graded under the same conditions as at large markets where the work is done by licensed inspectors supervised by the Bureau of Markets of the United States Department of Agriculture. The exhibit at Minot will include all the equipment used in determining grain grades, samples of different classes and types of wheat and corn, and various commercial samples of different grades.

The men with this Government exhibit will demonstrate how a sample of wheat or corn is taken from a car by means of the "probe" or "trier," so as to represent an average sample of the whole car, and they will show how the sample is mixed, divided mechanically, and the moisture, dockage, and test weight per bushel are determined by special equipment.

The prices paid for wheat and shelled corn are based upon their grading under Federal standards, and farmers who visit this exhibit will learn why grain prices depend upon grades. Through the United States grain standards act uniform grades for wheat and shelled corn have been established throughout the United States, and these grades are determined by the same methods, whether the grain is graded at a small market in the interior or at a terminal elevator on the Atlantic coast.

The grading of all wheat or corn that moves across State lines is supervised by Government representatives in the markets, and it is said that the application of the standards to country point transactions, as well as those in the large markets, has already resulted in more economical handling of these crops, and should give the farmer a premium grade for premium grain. Federal grains are now used by all inspection departments and are applied to all wheat purchased by the Food Administration Grain Corporation.

Although Federal supervision of grain grades under the grain standards act does not cover country points, farmers who attend the Minot exhibit and learn the essential features of the grain standards can supervise intelligently the assignment of grades by country dealers to their own grain.

LESSONS OF DAIRYING APPLIED TO FARM WOODLAND

Feed costs money. If a cow does not pay for her feed you dispose of her and buy a new one.

Why keep a tree if it is not paying rent on the land it occupies? Replace it by a faster growing tree.

If you want good calves you breed good cows.

You can not get good young trees from the seed of poor kinds. Leave seed trees of the kinds that grow fastest and are most valuable.

ASKS $500,000 FOR CONTROL OF CORN BORER, SPREADING

Secretary Houston has asked that an appropriation of $500,000 be made immediately available for work in connection with the control of the European corn borer. The request is contained in a letter addressed to Senator Gore, chairman of the Senate Committee on Agriculture and Forestry.

Until recently the insect was not known to be present except in some sections of Massachusetts, but the Secretary says that within the 10 days prior to the writing of the letter it has been found near Schenectady, N. Y., over an area comprising perhaps 60 square miles, and in a restricted region in Connecticut. It is entirely possible, he thinks, that it occurs in other restricted areas not yet ascertained.

The department has been forced to the conclusion, the Secretary says, that the insect is so firmly established as to make extermination impossible, and that it is a question whether it will be feasible to develop any satisfactory method of control. But, he adds, the danger of the spread of the insect from infested points into regions of intensive corn culture is so great, and the damage it would probably do so serious that he believes Congress would be justified in making available the appropriation asked for use in carrying out any control measures that it may be possible to devise. It is impossible to say whether the full amount of the appropriation asked will be required, but the importance of the matter to the entire country is thought to be such that the amount asked should be at the disposal of the department for doing everything possible to limit the spread of the insect.

Doctor Up Crippled Machinery Now; Late Winter Good Time for Repairing

A certain farm-equipment dealer has one record customer who buys a new binder every three years, and who at one time was in debt for three binders which he purchased in a period of seven years. This farmer uses a ready-made apple tree as a shelter for his grain harvester. When one tree rots he plants another. And although he and his family work hard, he is always paying last season's debts with next year's income. Why isn't he successful?

If the agricultural implements which have rusted and rotted to pieces in fence corners and barnyards could be placed end to end they would probably stretch from here to infinitum. Approximately $100,000,000 constitutes the annual loss due to lack of care in handling farm machinery—a tribute to catch-as-catch-can methods. The average farmer will sit up all night to save the life of a day-old calf or a litter of pigs and think nothing of it, yet the same man will begrudge the time and labor necessary to haul valuable tools from the fields to proper shelters.

Cultivate Conservation of Farm Tools

The present is an opportune time for taking inventory of farm machinery resources, as well as account of essential repairs and record of implement condition, says the Rural Engineering Division of the United States Department of Agriculture. Repairs should be ordered and put in place as soon as received. Machines should be gone over thoroughly and prepared for the coming season. All adjustments should be made, a plentiful supply of various sized bolts, nuts, and screws should be secured and everything got in shipshape order for the rush season of spring work.

A few spare hours can be devoted advantageously to the collection of old implement parts, repairs, and scrap iron which have accumulated in the fence corners and lanes, as the present values of scrap and junk justify the farmer in selling such material, which is valuable for industrial purposes.

Now is the time, also, to sharpen plow points and disks and to touch up the dull harrow teeth. The cultivator shovels should be sharpened, as blunt points and worn harrow teeth are highly inefficient and will not perform satisfactory work. All worn parts should be replaced and the machines placed in A-1 condition for field service. In spike-tooth harrows, teeth should be reversed in the clamps if worn only on one side, while if both points are dull, they should be removed and resharpened by forging and retempering. Springtooth harrow teeth should be handled similarly, while the disks or disk harrows should be edged. Mowers, reapers, and binders should be overhauled and put in order for a strenuous campaign. The United States Department of Agriculture offers valuable information in Farmers' Bulletins 946, 947, 948, and 991, "Care and Repair of Farm Implements," which every American farmer should read.

Provide Proper Repairs

The department recommends that a careful and systematic inspection of each implement be made for the purpose of making or ordering repairs. Plows, listers, harrows, rollers, drags, seeders, drills, planters, cultivators, mowers, binders, headers, hayrakes, hay loaders, stackers, wagons, racks, engines, and horsepower or belt-driven machines, such as separators, silo cutters, and feed grinders, are the implements in most common use. It is suggested that each implement be inspected for badly worn or broken parts to determine what parts should be repaired and those that must be replaced with new ones.

As a reminder for ordering new parts and in overhauling the machine, make a list for each implement of the parts to be repaired or the new parts to be bought; also any special tools necessary in making these repairs. Put down the name of manufacturer, year bought, and the number of the machine if it is known. If orders are sent to the factory, be sure to specify the catalogue, pattern, or casting number of the part. Order repair parts early, as the dealer may not have them in stock. Overhaul your equipment and have it all in good shape before the season opens.

Plan Now for New Buildings

Late winter is the best time to make plans and preparations for any building which is contemplated. This will assure the presence of the material when needed, and will often permit the making of favorable contracts which would be difficult to consummate later on, when the rush of spring work begins. As the coming season promises to be a busy one in the building line, every farmer who wishes to build is urged by the Federal department to "shake a leg" and get his plans under way.

Now is the time to prepare hog houses for the spring crop of pigs. Repair where necessary, so as to minimize pig mortality due to inadequate shelter. Thousands of newborn pigs are lost each season due to unsatisfactory housing. Weatherproof houses will save many.

The late winter also is a propitious time for the building of new and the repairing of old fences. Worn-out posts and wire should be replaced where necessary to make the fields stock tight. If possible, the supply of posts should be cut on the farm or purchased from a neighbor. Osage orange, locust, cedar, and chestnut posts are satisfactory for permanent fences. It is a good practice to peel the posts and dip the butts in creosote for preservative purposes.

The wise and frugal farmer plies the paint brush during the spare time of spring and fall, as he understands the dual value of paint in protecting against decay and weathering and in improving the sightliness of the farm buildings. If the farmer feels that he can not afford to use paint on his buildings, he at least can utilize cold-water paint or whitewash. The disadvantage of these materials is that their use requires more labor, for they must be applied every year, and if the owner wishes to use oil paints later on he will have to scrape away all the whitewash first.

GOOD CREDIT IS PRIME NEED OF FARMERS, BANKERS HEAR

(Continued from page 1.)

"On the other hand, there seems to be a notion among those not engaged in agriculture, but who are fed and clothed by its products, that the farmer is under a moral obligation to produce so abundantly that his products will be cheap. Indeed, much of the patronizing attitude which many people nowadays assume toward agriculture is inspired by no nobler motive than the desire to reduce the cost of living. Half of the impulse of the urban cry of 'Back to the farm!' is nothing less than a selfish, albeit and unconsciously selfish, desire to encourage other people to engage in the hard work and to endure the isolation of country life in order that urban dwellers may live sumptuously at small expense. I have reason to know that the members of this group entertain no such foolish notions. You have given concrete evidence of your appreciation of the practical problems of agriculture by the substantial aid you have rendered, and you are here now to gather information that will enable you to render further aid. I shall not anticipate the lectures you are to hear from responsible officers and experts of the department concerning the several undertakings of importance for the year 1919. I wish only to emphasize an outstanding

fact which has strangely escaped the observatiou of most financiers.

Farming Returns Sure

"On the average of years agriculture is the surest basis of credit. Commerce, manufacturing, mining, and transportation are subject to countless fluctuations which make for good fortune or ill fortune quite beyond human control. There is inevitable hazard in any euterprise which is essentially and altogether a human artifice. Even Governmeut with its securities is subject to overturn and upheaval, as we have lately witnessed iu a large part of the world. Agriculture taken as a whole is the one unfailing vocation of man because it is a process of nature, aided by man's endeavor, and nature never defaults or goes into bankruptcy. Panics may disrupt commerce and popular uprising may destroy governments, but the earth never fails to produce. There may be drought here or flood there; disease may decimate a flock or pests may destroy the crops iu a region, but even these misfortunes fall short of impairing the iudustry or disheartening the average producer. A member of this group a year ago told me that his bank had renewed the loaus of farmers for three years during an unprecedented drought, and had finally collected the debts with negligible loss. I doubt whether the same number of commercial and manufacturing debtors would have endured such losses aud settled without resort to the discounts of the bankruptcy court. Farmers are sometimes slow in payiug their debts because as a rule they are not trained in the business methods which require prompt liquidation at the maturity of an obligation, but the farmer of industry and character pays sooner or later.

A Field For Finance

"For these reasons, I hold that agricultural credit properly applied is the soundest credit, and yet agricultural credit has received the least thought of financiers. I trust this is a sufficient basis for the suggestion that agricultural credit offers an attractive field for constructive thinking and actiug by experts of finance, and that money wisely invested in agricultural credit will be safely and profitably returned.

"I am speaking now of operating credit which is the credit furnished by the bank, as distinguished from investment credit. In many communities which draw their principal support from agriculture, the man who deals in the farmer's products or sells the farmer his supplies enjoys a cheaper rate of interest and more generous accommodation than the producer enjoys. In many such communities the farmer's operating credit is furnished by the merchaut. Thus, in agriculture the fundamental business of producing the material is neglected by banks, while in other iudustries both the fundamental business of production and the collateral business of handling or selling are equally accommodated by the banks, and generally the manufacturing industry by reason of its basic character enjoys a more favorable credit thau the handling or selling business. If agriculture is, as I affirm, a sound basis of credit, then the honest and industrious producer should receive generous accommodation.

"The disadvantage which the farmer suffers is not, I am sure, the result of purposeful discriuuination, but it is none the less discrimination, and it produces in many instances a feeling of despair which disheartens effort to practice better business methods.

Encouraging Ownership

"While our new system of land credit is affording much relief to those who have farm property to improve and those who have some capital with which to buy, it should be understood that the great class of tenant producers are without property or capital. Their need is operating credit in order that they may produce economically, and in order that they may acquire something with which to purchase farms. If we are to help the landless to acquire land we must provide a better system of operating agricultural credit for the intelligent and the industrious who, in many parts of the best farming regions of the United States, despair of ownership because of the hard couditions which I have described. As every boy is a potential man aud will be a strong man or a weak man accordingly as he is nurtured, so every tenant is a potential owner and he will become a substantial success or a derelict accordiugly as opportuuities are provided.

"The only hope of a reinforced and abundaut agriculture is a profitable agriculture which youug men will seek as they seek other vocations that promise substantial reward, and as the day of cheap land has passed the prime uecessity for multiplying farm home ownership is financial accommodation aud sound business practice for worthy young men in order that they may acquire the iuitial capital for farm purchases. There is uo greater public service that can be rendered to the United States and to the general welfare of all the people than the mastery of this problem and the leadership in this activity."

CONTROLLING ONION THRIPS; BIG MENACE TO GARDENERS

The onion thrips is au insect so small that it is almost invisible to the unaided eye, but it is prolific, and the most serious menace to the onion-growing industry of this country. It causes an anuual loss to this crop alone estimated by specialists of the United States Department of Agriculture to be at least $2,250,000. Though the insect has a particular liking for onions, it preys upon other garden and truck crops, such as cabbage, cauliflower, cucumbers and melons, and also has a ravenous appetite for greenhouse and many ornamental plants, particularly roses. To aid growers in ideutifying this insect and preventing the losses for which it is respousible, Farmers' Bulletin 1007, "Control of Onion Thrips," has recently been published by the United States Department of Agriculture.

The first indication that an onion field has been attacked by thrips, says the bulletin, is showu by the leaves, which become whitened. In advanced attacks the leaves are curled, crinkled, and twisted, and finally die dowu permanently. To control this pest, begin spraying with nicotine sulphate solution as soon as there is any evidence of the insect. If spraying is delayed until hundreds of young thrips are present the crop will be seriously injured. The spray material is made by the followiug formula: Three-eighths pint of nicotiue sulphate (40 per cent), 4 pounds of dissolved soap, and 50 gallons of water. Spraying should be done thoroughly and applied as a fine mist.

It is not advisable to plant other crops, such as early cabbage and cauliflower, upon which the thrips feed, near the onion fields. After onions, cabbage and related crops are harvested, the field should be cleaned up to destroy any breeding places of the insect. They will continue to thrive ou any portion of these plants or weeds that might remain in the field. It is a good practice to plow as deeply as possible and harrow the ground after harvest. Much of the injury can be avoided by planting as early as possible and by using quick-actiug fertilizers after the onions are well set or the bulbs have begun to form. Onion fields should be watched constantly aud the plants should be kept growing thriftily, since once the plants become checked in their growth from any cause the thrips will multiply more rapidly than ever and it will be a hard fight to save the crop.

The cereal crops of the United States were worth over $7,000,000,000 to the farmers who raised them in 1918. The product of these crops, all together, was a little under the total for 1917, but, while the prices of some of the cereals were lower in 1918 than in 1917, the prices of others were sufficiently higher to make the total value of the cereals greater in 1918 by more than a quarter of a billion dollars.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

"Farm Implement Repair Week" a Drive for Efficient Tools

The week beginning February 10 was observed in several Southern States as "Farm Implement Repair Week," when county agents urged every farmer to go over his tools and machinery and make all necessary repairs.

The care of farm implements should be given attention the year round, says one of the leaders in the movement, but customarily the repair of equipment is put off from month to month until the time when the implements must be put in the field. Then, if parts are needed, either they are ordered in a desperate hurry or the machine is used in a condition when it can not do the best work.

Here are some of the points emphasized during the week:

1. Collect all farm implements and group them together according to kinds or types.
2. Take one kind, walking plows for example, and go over each machine carefully and note all parts that need replacing, all shares that need sharpening, all parts that need polishing, and all nuts that need tightening, or bolts that may be lost.
3. Take another group of machines and make the same careful examination.
4. If possible order at the same time all parts that will come from the same manufacturer. In this way express charges are saved, and there is less chance for delay and mistakes in shipment.
5. Take a complete inventory of all equipment.
6. Use the paint brush freely on all parts of the implement except those parts that should be polished. Make these last shine.

BUY HAY IN LOTS, SAVE MONEY

Dairy farmers of Snohomish County, Wash., purchased 1,500 tons of alfalfa hay last year at a saving of $6,000. The county agent assisted the farmers in locating a good market, and the hay was purchased at $22 a ton f. o. b. In less than two weeks afterwards hay was selling at $26 a ton. This county, which comprises 31,549 acres of improved land, much of it pasture land, supports 24,184 head of cattle, 3,812 head of horses, 890 head of sheep and goats, 2,228 head of hogs, and 16,980 fowls, according to a 1918 agricultural survey.

COWS GAIN UNDER TEST

Members of Ohio Association $12,000 Better Off in a Year

The cow-testing association of Hamilton County, Ohio, which is composed of 24 members of the county farm bureau, placed 304 cows on test for four months or more during 1918. Of this number 131 cows were on test for the full year. In 1916 the cows owned by members of this association produced 4,126 pounds of milk and 175.98 pounds of butter fat a head. In 1917 the cows produced 4,721 pounds of milk and 212.9 pounds of butter fat, while in 1918 the average was 6,107 pounds of milk and 259 pounds of butter fat.

The average gain a head in pounds of milk during 1918 over the first year was 1,981, while the average gain a head in butter fat was 83 pounds. The average gain of 1,386 pounds of milk in 1918 over 1917 represents a total gain for the association of 415,264 pounds. Figuring this at $2.975 a hundredweight, the average price for the year, gives an added value of $12,334.14 to the association.

The returns show there were no exceptionally high producers, but the average production of the entire association shows a very material increase.

HOW GOOD BLOOD HELPED A DAIRY

A good dairy bull, purchased by a Montana county farm bureau member, cost $100 as a calf; it was put at the head of a herd of 10 cows, the average annual production of which was 4,800 pounds of milk and 260 pounds of butter fat. The daughters of the bull have now replaced the old cows in the herd and exceed the production of their dams by an average of 102 pounds of butter fat and 1,828 pounds of milk per year. This improvement nets $300 profit each year without taking into account the difference in value of the calves. A cow should "carry on" for at least six years, which would mean $1,800 additional profit from the 10 cows, because of the $100 invested in the bull calf. "It was a bully good investment," says this farmer.

Good Blood Is Emphasized and Value of Pigs Goes Up

County agents of West Virginia, in carrying out the program of the United States Department of Agriculture and the State agricultural college to increase food production, last year encouraged the farmers of the State to keep additional sows, the result being that these sows produced 13,722 pigs, which increased West Virginia's pork production by more than a million and half pounds. The value of good blood in live-stock breeding has been one of the things particularly emphasized by the agents and thereby 16,446 cows were bred to registered sires instead of scrubs, which meant an increased value at birth of calves of at least $164,460, it is estimated.

The agents report that 7,520 cattle are being fed silage for the first time this winter with a resultant saving of not less than $37,600 to their owners. Ewes to the number of 6,895 were bred to registered rams instead of scrubs with a prospective increased value of the lamb crop of upward of $8,600. Sheep numbering 4,225 and valued at more than $21,000 were saved from the ravages of parasites through the activities of the various county agents.

FLORIDA SWINE INCREASE; FARMERS GROWING OWN FEED

Production of hogs in Florida is taking a sharp upward curve, according to reports recently compiled by the extension specialist of the United States Department of Agriculture, who is working in Florida in cooperation with the State agriculture college. Twenty-seven hog-growing counties reporting show an average increase of 58.54 per cent during the year 1918. Holmes County leads with an estimated increase of 200 per cent; Brevard County is second with 125 per cent increase; while Taylor and Madison Counties each reported 100 per cent increase.

All counties reported that the farmers were successfully growing their own supply of feed, such as corn, beans, cowpeas, chufas, oats, rye, rape, sweet potatoes, and soy beans. Records on file in the office of the State boys' club agent show that those counties reporting the

greatest increase in pure-bred swine and the lowest increase in scrub and grade hogs are those counties in which the boys' pig club work has been established longest, and is being pushed hardest by the county agents.

SHOWS REAL RESULTS IN YEAR

Maine Farm Bureau Saves Much Money for Its Members

Before the York County (Me.) Farm Bureau had been operating a year, it had demonstrated its value as a medium through which agricultural extension work could be carried on. Operating as a cooperative buying agency, it is saving its members thousands of dollars. Six farmers' unions have been organized as a direct result of the farm bureau and the county agent. From the fall of 1917 to July 1, 1918, these six unions did a gross business of approximately $96,000.

The county agent reports that they saved 7 per cent to the farmer members on such commodities as grain and groceries, a total of $6,720. The agent believes that the unions will do a quarter of a million dollars worth of business a year when thoroughly organized.

PLEDGED TO CULL HENS

As the result of 10 poultry-culling demonstrations held by the Farm Bureau during August, 1918, the owners of 43,049 hens, out of 100,142 in Westchester County, N. Y., pledged themselves to cull their flocks. The series of meetings was attended by 426 persons, and 120 signed pledges to cull their flocks and to keep a record of production for one week previous to the time they were culled and for the following week, these reports to be turned in to the Farm Bureau office.

UTAH FARMERS USE SYSTEM IN GRASSHOPPER CAMPAIGN

The Sevier County, Utah, farm bureau saved $9,495.36, it is estimated, by waging a well-planned campaign against the native grasshopper. At the end of the season the record kept by the county agent showed that 700 pounds of arsenic had been used by 115 farmers. This amount was sufficient to prepare 14,000 pounds of poison bait.

Really effective work began in the spring of 1918 when the farm bureau decided to handle the situation. A wagon was sent 27 miles to the sugar factory for a ton of beet molasses. Molasses is sold to beet growers in limited quantities, but for hopper poisoning the factory consented to sell to anyone. All the bran in the town of Salina was purchased and lemons were secured by the case. These materials and a pair of scales were delivered on the concrete floor in front of the schoolhouse, and several farm bureau officers and members were there to do the work.

The bran was dumped out in 100-pound lots, three piles being kept going at once. The lemons were ground into tubs, water was measured from a tap at the edge of the floor, and the county agent measured the molasses and weighed the arsenic. Two men at each pile did the mixing, and one of the farm bureau officers in charge weighed out the prepared bait, selling it at cost. That afternoon a ton of bran was mixed up and delivered to 25 farmers. Two more public "mixings" were held by the bureau, and a large number of farmers prepared poison bait at their farms.

LEADS NEW YORK FARM BUREAUS

Herkimer County, N. Y., with 1,437 members in its farm bureau, had the largest membership in the State last year in proportion to the number of farmers in the county. The farm bureau itself has been more thoroughly organized by perfecting the system of local district committees in every school district. There are now 55 counties in New York maintaining farm bureaus, with a total membership of 46,612, or an average of 847 a county.

A SOW THAT SURVIVED

Tennessee Instance Shows Value of Cholera Vaccination

Two years ago a farmer in Maury County, Tenn., lost all of his hogs from cholera—he didn't believe in vaccination then—so when the county agent called on him in the fall of 1917 to interest him in increasing hog production, in answer to the call of the United States Department of Agriculture, little encouragement was received.

However, the farmer wanted to do his part, so he purchased a brood sow and to please the county agent, he said, had the animal vaccinated. He placed the sow in his brother's herd for breeding the following spring. While there the destructive disease came and every one of the brother's hogs died, but the vaccinated sow survived and has since produced two litters of healthy pigs.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 2.*)

ern States seeding during the latter half of April is advisable whenever conditions permit. In favorable seasons seeding before the middle of April frequently can be done to advantage, while in unfavorable ones, seeding may have to be delayed until early May.

VARIETIES OF OATS TO SOW.

Throughout the northern States midseason-maturing varieties, such as Swedish Select, Silvermine, Banner, and Victory usually outyield other varieties. In average yield, the large, late (side oat) varieties rarely surpass the midseason type in this section. In unfavorable seasons, however, early varieties, such as Kherson and Sixty-Day, frequently outyield the midseason varieties. In the corn belt early varieties as a rule produce the most satisfactory yields. For the northern portion of this section strains of the Kherson and Sixty-Day type are to be recommended, while in the southern portion Red Rustproof, an early red oat, is the most dependable. For growing under irrigation at high elevations, midseason varieties of the Swedish Select and Silvermine types are the most suitable.

SEED BED FOR OATS.

Prepare a good seedbed for oats. The old idea that oats will produce well on a poor seedbed has persisted too long. This crop responds as well to thorough seedbed preparation as any other cereal. Do not plow land that was in a cultivated crop last year, but disk and harrow sufficiently to make a loose, friable surface seedbed 2 or 3 inches deep. As oats require a fairly firm seedbed below the two or three inches of top soil, spring plowing is not desirable, there not being sufficient time for the soil to settle before sowing. Disking also is less expensive than plowing. Of course, if a heavy growth of weeds is present in the cultivated crop, it will be necessary to plow the land, in which case the seedbed should be rolled or dragged and worked down as much as possible before sowing.

SEED AND SOWING.

Sow the best seed oats obtainable. Usually seed grown in the region where it is to be sown is better than that brought from some other section. Thoroughly fan and grade your seed, and then treat it for smut. The largest yields are obtained by use of a good grain drill. Drilling requires less seed, insures a more even distribution, a more uniform covering, and consequently quicker and more

uniform germination. Under humid conditions the best amount of seed to use on a well prepared seedbed is from 8 to 10 pecks to the acre. If it is necessary to sow broadcast on a poorly prepared seedbed, use about 12 pecks. Under dry-land conditions these rates of seeding are usually reduced about one-half, from 4 to 6 pecks usually giving the best results.

MARCH WORK WITH POULTRY

The poultry department of the farm establishment must not be forgotten. When pruning or culling time comes, spraying the orchard is no more important than spraying the hen-house or dusting or greasing the hens and chicks. Early hatching is one of the prime essentials for success; but early hatching is only the beginning. If you want good, strong, vigorous, well-matured pullets to do the laying for you next fall, you must see that the chicks hatch out at the proper time, and then keep them growing, and prune and cull vigorously. The success of the future depends on the work of today.

Many people think that because they paid attention to details and "got things going" last year they don't need to bother much this season. This is a big mistake. The real results this year were caused by attention to details last year, and next year will depend on this year—which means that careful attention is necessary every year. Those baby chicks, too, must be looked after. Ask your county agent or home demonstration agent for a circular on "First Care of Baby Chicks."

When planning to raise standard-bred chicks, many people mistakenly think that different methods should be used. This is all wrong. To those who have made a success in raising mongrel or mixed poultry—the common "barnyard flocks"—it is necessary only to suggest that the same methods be employed with the standard-bred chicks that were used in raising the mixed or mongrel variety. To those who have not raised poultry, the best advice is, "give the chicks a good chance and they will do the rest." Do not hamper them with needless restrictions.

Baby chicks are easily trained and will naturally seek places that are warm, but they have no power to regulate the heat or ventilate the room or to supply fresh water. Keep charcoal, grit, etc., before them all the time or when needed. They naturally love to scratch, and if given a chance will make the litter fly in digging after tiny morsels. Keep them scratching. This can best be done by not overfeeding. Have an outside room that is a little colder than where the brooder is kept, or put the brooder in one side of the building or room. This will leave the other side cooler. Remember that sweating or damp brooders or houses are more dangerous to chicks than cold; but chicks must have a sufficiently warm place to hover whenever they wish.

To those poultry raisers who brood by the hen all there is to say is to let the hen do the brooding. Keep the hen free from lice and also keep her dry and keep the coop clean. It is no difficult task; all that is needed is thoughtfulness and careful attention. Baby chicks will get under the old hen whenever they feel the need of a little warmth. It is, therefore, very important that the hen should be kept dry. Do not allow the hen her liberty with her brood for at least four weeks. This will give the chicks plenty of opportunity to become strong. Unless the grass is short and conditions favorable, it is better not to turn her out as early as four weeks. The first two weeks, however, are the most important in the life of the chick, and the most important factor is brooding during that period. The hen will do that properly if given the proper place and let alone. To those operating brooders the best advice that can be given is, "Watch, and follow instructions." Don't be too big-hearted and overfeed the baby chicks the first week, as it is a well-known fact that more chicks die as a result of overfeeding the first week or two than from any other cause. Many poultry raisers do not realize this because many chicks, owing to their strong vitality, do not die during that short period of one, two, or three weeks, but hang on for a longer period and then die. The death of these chicks is attributed erroneously to other causes when in reality it is due primarily to overfeeding during the first week.

SAVING MICE-GNAWED FRUIT TREES

If fruit trees have been seriously injured by mice or rabbits eating the bark and sapwood at the surface of the ground, they can be saved by bridge grafting. First trim off the gnawed parts of the bark with a sharp knife leaving the edges smooth. Then take from the tree a twig of last summer's growth about as thick as a lead pencil and long enough to extend an inch and one-half above and below the gnawed part. Both above and below the gnawed part cut out a strip of bark an inch and one-half long and as wide as the twig or graft is thick. Trim both ends of the graft on the same side by paring it down to about half its thickness for a length of about 2 inches and then fit the prepared ends into the bark cuts above and below the injury. Fasten each end of the graft to the tree by driving in a very fine tack or brad not much thicker than a pin. Cover the ends of the graft and all cut surfaces with grafting wax. A union between the graft and tree will then take place and thus the gnawed part will be bridged over. In very bad cases of injury it may be necessary to fasten the lower end of the graft into one of the tree roots. Place a graft every 2 inches across the injured part.

PRUNE GRAPE VINES

With the approach of spring it is very important that all grapevines and other small fruits be pruned, sprayed, and given proper attention. Grapes especially need attention at this time. If the vines have not been pruned, do not delay but prune them at once. If the pruning is put off too long the vines will bleed and lose their vitality. There are two or three methods for pruning grapevines, but the main essential is to prune back the lateral branches that were formed last year, leaving about three or four buds; also, if the number of these branches is too great, they should be thinned out and only the stronger ones left.

The fruit is borne on the new wood formed during the early springtime, and the old wood simply serves as a basis for the production of this new wood. If the vines are left without pruning, a great number of new branches will be formed, the vines will be too thick, and the fruit small and inferior. It is a good plan to spray the grapevines with a commercial lime sulphur solution, at the rate of one part to nine parts of water. This spray to be applied before the buds start. Later, after the fruit has set, make two sprayings with Bordeaux mixture consisting of 1 pound of copper sulphate, 1½ pounds fresh stone lime, and 12 gallons of water. The copper sulphate should be dissolved in about 6 gallons of water, and at the same time the lime should be slaked in a little water, then diluted to 6 gallons, and the two solutions poured together and used immediately. This spray will go a long way toward preventing rot and mildew of the grapes.

A very simple method of protecting grapes from rot is to place a 2-pound bag over each bunch, tying the bag around the stem of the bunch by means of a short piece of string. The bunches of grapes will develop in these paper bags and will be protected not only from decay but also from bees and other insects.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Minnesota Leads in Homemade Bread.

Bread like mother used to make is more plentiful in Minnesota than in any other State. At least Minnesota leads the Nation in the production of homemade bread, according to reports based on the sale of yeast, say extension workers of the United States Department of Agriculture. For many years Pennsylvania held this enviable record with Iowa third and Minnesota fifth, but five years ago bread making clubs were organized by the Federal and State extension forces throughout Minnesota. There have been about 16,000 boys and girls in these clubs each year, and every member has taken part in public demonstrations, and many have contested at the State fair. Three years ago Minnesota went into third place, and in 1918 she took the honor away from Pennsylvania by producing the greatest amount of homemade bread of any State in the Union.

Profit from One Pig, $587.

Ample proof that pig clubs pay is contained in reports being received continually by the United States Department of Agriculture from club leaders. One report recently received tells of the success of a Tennessee boy who, in May, 1918, invested $50 in a pure-bred gilt, and now figures his profits at $587.35. She farrowed seven pigs, part of which the boy sold for $133. With this money he purchased a boar of excellent breeding, which he exhibited at the East Tennessee Division Fair, winning the grand championship of the breed over all exhibits. He won $87 in prizes, $45 of it in competition with experienced farmers. His animals are now valued at $525. This, with the money from sales and prize winnings, amounts to $745, from which he deducts $157.65 for feed and care, leaving a profit of $587.35.

"Let's Do Something Big."

That's the slogan of the Glenwood Mother-Daughter Club, organized in Leavenworth County, Kans., four years ago. The results show it has lived up to its motto. Starting with 22 members in 1915, it grew to 68 in 1917 and had a canning record of 11,545 quarts. For three successive years the club won first honors in Kansas and, one year, first honor as a club in the 33 Northern and Western States. Even with the drought in Kansas last year, 9,220 quarts of food products valued at $4,459.22 were canned by this club. The whole community has profited by the organization which does not confine itself to canning activities. It is seldom a farm is now for sale in that neighborhood. The women have found life in the country interesting. The country church was in the last stages of disintegration, but through the efforts of the club it now is pulsing with life and the minister is one of the best paid in the county. The schools in the community, which were below grade, now rank among the best in the county, with the highest paid teachers and best buildings. The credit for all these changes, as well as many others in that community during the past four years, is credited to the efforts of the Glenwood Mother-Daughter Club.

Southern Workers Study Food Spoilage.

Need for instruction in the prevention of deterioration of food products by fermentation is receiving the attention of State leaders, county agents, home demonstration agents and teachers of the South. The general subject includes many phases. For instance, it has been found that there is constant need for instruction on the kind of water to use in canning, preserving, pickling, and similar operations. Under arrangement with the States Relations Service of the United States Department of Agriculture, Dr. Edwin Lefevre of the Bureau of Chemistry recently delivered a course of lectures on fermentation at George Peabody College for Teachers, Nashville, Tenn. This institution is a graduate school for teachers. In connection with it there is operated the Seaman A. Knapp School of Country Life. Its student body includes teachers from all the Southern States, men and women who are engaged in county agent and home demonstration work, and others who are preparing for that class of service. Dr. Lefevre will attend the Tennessee meeting of county and home demonstration agents, to be held in Knoxville in March, to continue the work begun at Peabody.

Smut Losses Being Reduced.

Twenty-five per cent more farmers in the United States treated seed to prevent cereal smuts in the 1918 spring and fall seeding seasons than during the previous year, according to an estimate recently made by the United States Department of Agriculture, based on surveys and on increased demand for formaldehyde and copper sulphate, which are used in making the treatment. The estimated national loss due to smuts in the 1918 crop was 25,500,000 bushels of wheat; 110,000,000 bushels of oats; and 6,000,000 bushels of barley. Minnesota and Nebraska together lost during 1918 over 8,000,000 bushels of wheat from stinking smut alone, practically all of which could have been prevented by a simple treatment previous to seeding.

Dig Out Common Barberry Now.

This is the time to locate barberry bushes, dig them out, and thereby protect the wheat crop of the entire neighborhood from black rust. That is the advice of workers in the United States Department of Agriculture who are directing the campaign to destroy the common barberry. At present about 60 field men are at work in 14 Northern and Central States locating barberry bushes; but this force will be very materially increased before the height of the open season for barberry digging—when the frost begins to come out of the ground. At present the spores of the black stem rust, in which stage the rust passes the winter, are lying on stubble and grasses waiting for spring to come so they can begin their destructive work. The black spore stage can not spread to grains and grasses, but only to the common barberry, on which it forms the spring or cluster-cup stage. These spores then cause rust on grains and grasses. If there are no common barberry bushes, therefore the rust can not get started in the spring.

Destroy This Shade Tree Pest.

Just before spring begins is a good time to swat the tussock moth caterpillar, a serious pest of shade trees in New England, Middle Atlantic States, and, in fact, as far west as the Mississippi River, except in the Southern States. The way to get ahead of the pest, according to entomologists of the United States Department of Agriculture, is to go over the trees now and destroy the egg masses on them, either by hand gathering and burning or by daubing them with a mixture of creosote and turpentine. Cities badly afflicted often can make successful use of

school children in campaigns of gathering these egg masses. If, instead of burning, the eggs are placed in barrels or boxes snugly covered with wire screen or cloth of a mesh fine enough to retain the caterpillars that come out, many parasitic insects will be released which will help in the control of the pest. Other timely suggestions of the entomologists are: Spray with miscible oils, following manufacturers' directions, trees and bushes infected with scale insects; cut out and burn lilac stalks infested with borers; burn fallen leaves and twigs that suffered during the past summer from leaf-blotch miner and twig girdler; hickory trees infested with hickory barkbeetle should be cut and burned or otherwise disposed of before spring; overhaul spraying apparatus in preparation for the spring and summer work.

States Join in Spraying Campaign.

The San Jose scale, which has had its destructive way in many orchards, received a body blow during the first week in February when the "spray your orchard" campaign was held jointly by four Southern States—Mississippi, Alabama, Louisiana, and Tennessee. County agents in these four States gave most of their time for an entire week to lime-sulphur spraying demonstrations and talks on the how and why of spraying. The Mississippi College of Agriculture estimates that there are nearly 6,000,000 bearing fruit trees in the State, and that 90 per cent of them are infested with scale.

County Officials Support Bureau Work.

So completely has the Saline County, Nebr., farm bureau demonstrated its usefulness that the county commissioners recently appropriated $2,000 to carry on the work this year, notwithstanding the fact that the farm bureau cost a little over half that amount last year. The county commissioners acted after the special farm bureau committee had laid before them 1,400 farm bureau membership cards. These showed that 75 per cent of the farmers of Saline County are members of the county farm bureau. Fifty counties in Nebraska now have similar bureaus.

Show Milk's Value to Children.

No more convincing proof of the value of milk in the diet of children can probably be found than in the results of experiments conducted for several months by the home demonstration agent in Manatee County, Fla. She has weighed and measured over 2,000 children, and has found that those weighing and measuring up to the standard, or a little above, are almost without exception receiving a great deal of milk. The children much under the standard have been receiving little or no milk. Carrying the experiment further underweight children began almost immediately to show gains when milk was added to their diet. With such evidence as to the value of milk it is not surprising that Manatee County has more dairy cows now than a year ago, and the number is rapidly increasing. The results of this experiment are being used as one of the arguments in a State-wide campaign for more dairy cows.

Largest Pure-Bred Calf Club Holds Sale.

The Story County, Iowa, pure-bred calf club, said by local leaders to be the largest club of this kind in the United States, recently held a sale at which 90 pure-bred heifers sold for a total of $17,870. The club was organized only last summer by the county agricultural agent, and the boys and girls who are members bought pure-bred heifers with money loaned by local banks. The highest price paid at the sale was $650 for an Angus heifer that cost its owner $185 when the pure-bred heifer club was organized last August. The second highest price, $635, was paid for a shorthorn heifer, which had cost $225 originally. About 1,000 persons attended the sale, coming from all parts of the State.

Breeders' Associations Assist in Sales.

One of the many advantages which is to be gained by a number of live-stock breeders organizing an association for their mutual interests is in building up a reputation for the sale of stock more rapidly than would be possible by each member working separately. This is illustrated by the records which are being made by the three community breeders' associations in Waukesha County, Wis. Buyers who come to this section often ask the local county agent whether or not the owner of stock they intend to buy belongs to one of these organizations. The associations have won the reputation of standing behind all sales made by the members, and buyers know that any animal purchased from an association member will be "as represented." The three organizations are now affiliated in an effort to make their community a tuberculosis-free area by repeatedly making the tuberculin test and disposing of all animals that show signs of disease. The county agent reports steady progress in this clean-up work.

If the prospective home orchardist prepares the soil where his fruits are to stand as thoroughly as he does his garden before planting vegetable seeds, the subsequent rapid growth of his fruit trees will amply repay him.

DOOM SEEN FOR CATTLE TICK; CONFIDENCE FROM CONFERENCE

Determination to Banish Parasite Shown As 1919 Campaign Opens

Governor of Arkansas Declares Eradication Work Is Salvation of Southern Live-Stock Raising; Reports of State Work

The cattle fever tick will be permanently driven from American soil within the next few years. That is the belief of officials of the Bureau of Animal Industry, United States Department of Agriculture, who have returned from the conference of tick eradicators at New Orleans.

Their encouragement results not alone from the "pep" and the determination "to work themselves out of a job" evidenced by the men who are paid to fight the tick, but from the promises of continued and even stronger cooperation by officials of tick-infested States, and from the pledges of increasing support by leading live-stock raisers of the South.

The New Orleans conference, called primarily as a "council of war" to plan the 1919 campaign, proved to be in reality the starting point of the "last big drive" against the tick—the drive that is to remove the parasite from its position as the greatest obstacle to the development of strong agriculture in the South. As an evidence of this, Dr. J. R. Mohler, Chief of the Bureau of Animal Industry, set 1923 as the last year for the tick's residence on American soil. He called on the tick fighters to clean up 90,000 square miles of territory this year—a third of the area still under Federal quarantine. He mentioned 1923 because the new State-wide law in Texas does not become effective in the last of the three zones in that State until 1922. But a report from Texas said that with proper State and county cooperation the "Lone Star Commonwealth" may be placed in the freed area by the end of 1922. Another year, however, may be required to clean up local infestations in Texas and other States.

Arkansas Governor Testifies

What tick eradication means to the South was described by Gov. Brough, of Arkansas, who told the tick fighters that their work is proving the salvation of southern live-stock raising, and is providing the basis for balanced and profitable farming. Gov. Brough, recalling that 10 years ago, when he began to advocate tick eradication, many people expressed the opinion that "Brough himself ought to be dipped," said that now the campaign is moving forward with

resistless force, and characterized opponents of tick eradication as men notable only for their short sightedness, ignorance, or selfishness.

Members of the Southern Cattlemen's Association, meeting at the same time and place as the tick eradicators, reiterated strongly their hope for the complete extermination of the tick, and in a resolution urged the legislature of North Carolina to adopt a State-wide compulsory tick eradication bill then pending. The cattlemen and the tick fighters—all having the same aim, better southern live stock—attended each other's sessions, and the same speakers, in several instances, addressed both meetings.

Early Dipping Urged

The first stop toward driving the tick this year from 90,000 square miles—a new year's record in the campaign—was outlined by Dr. R. A. Ramsay, chief of the tick eradication division of the Bureau of Animal Industry, as being "Dip that tick in March." Examples were cited to show that tick infestation is much less in localities where cattle are sent to the dipping vats early in March. The abundant reproductive powers of the tick—from 3,000 to 5,000 eggs are laid by each female—were impressed, and with them the fact that a tick killed in March means thousands less in June, and millions less later in the season. By getting an early start on the tick it is hoped to reduce infestation to such an extent that the tick eradicators will have the advantage throughout the season.

State Reports Show Progress

Reports from the States in which tick eradication work is being conducted were presented at the conference. They are summarized as follows:

ALABAMA.—Strict enforcement of State-wide tick eradication law recently passed should drive the parasite speedily from the 24 counties still under quarantine.

ARKANSAS.—Eighteen counties expected to clean up this year, leaving less than 16 per cent of the State probably under quarantine at the end of 1919. Legislature expected to appropriate $100,000 to complete the work.

FLORIDA.—Systematic compulsory dipping of cattle to be carried out in at least six counties this year. Legislative committee to present a State-wide tick eradication law. Vat construction work to be on a large scale preparatory to work in every quarantined county during 1920.

GEORGIA.—Twenty-two counties to conduct systematic work this year, and should be ready for release December 1. State-wide tick eradication law becomes effective December 31, 1919.

LOUISIANA.—All remaining quarantined areas expected to be freed this year through operation of State-wide law.

MISSISSIPPI.—Of 80,000 herds of cattle in the State, 872 are under local quarantine; entire elimination of pests expected in near future; cattle industry developing as result of ticks being banished and Federal quarantine lifted.

NORTH CAROLINA.—Since December 1, 1918, three of the 19 quarantined counties have agreed to cooperate; more expected to follow; State-wide tick eradication bill reported favorably by joint committee from both legislative houses.

OKLAHOMA.—Strong effort needed to complete tick eradication in counties still under quarantine because of mountainous conditions and lack of interest in live-stock raising. Four counties doing systematic work expected to be released this year from quarantine.

SOUTH CAROLINA.—Regular disinfection of cattle to be continued this year in coastal-plain counties as a precaution against spread of local infestations and to eradicate the parasite completely.

TEXAS.—In accordance with new law—effective this year in Zone No. 1—State should be free of tick by end of 1922. Preliminary work going forward in other zones. Quality of cattle improves in counties where tick has been banished.

Much No. 1 Spring Wheat Shown By Duluth Reports

Out of 41,711 cars of spring wheat inspected at Duluth from July 15 to December 31, 1918, 35,180 cars, or 84 per cent, were graded No. 1, according to reports of licensed inspectors made to the Bureau of Markets, United States Department of Agriculture.

Of the total cars of spring wheat inspected 35.11 per cent graded dark northern, 62.09 per cent northern, and 2.80 per cent red spring. Among the 41.711 cars inspected 30.56 per cent graded No. 1 dark northern, the premium grade, and 52.11 per cent grade No. 1 northern. With the basic price at Duluth of $2.22½ for No. 1 northern, 82.67 per cent of all the receipts of hard red spring wheat at that market sold at the basic price or higher. The 30.56 per cent of No. 1 dark northern, amounting to 12,748 cars, sold at a premium of 2 cents or for $2.24½ a bushel.

Reports show for the same period that 76.33 per cent of the durum wheat inspected was graded amber durum, 19.63 per cent fell in the next lower subclass, and 4.04 per cent graded red durum. Of the 7,032 cars of amber durum, 94.31 per cent graded No. 1 or No. 2.

The following tables give the Duluth inspection in detail:

Hard Red Spring Wheat inspected at Duluth July 15 to December 31, 1918.

Subclass.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	Sample.	Total cars.
Dark northern:							
Cars	12,748	1,123	431	206	52	86	14,646
Per cent	87.04	7.67	2.94	1.41	0.35	0.59	.....
Northern Spring:							
Cars	21,736	2,179	1,100	467	151	264	25,897
Per cent	83.93	8.42	4.25	1.80	.58	1.02	.....
Red Spring:							
Cars	696	178	135	97	16	46	1,168
Per cent	59.59	15.24	11.56	8.30	1.37	3.94	.....
Total cars	.....	.....	.....	.....	.....	.....	41,711

Durum Wheat inspected at Duluth July 15 to December 31, 1918.

Subclass.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	Sample.	Total cars.
Amber Durum:							
Cars	2,099	4,533	215	106	37	42	7,032
Per cent	29.85	64.46	3.06	1.51	0.52	0.60	.....
Durum:							
Cars	383	1,199	105	56	13	53	1,809
Per cent	21.17	66.28	5.80	3.10	.72	2.93	.....
Red Durum:							
Cars	249	99	12	10	.....	2	372
Per cent	66.93	26.61	3.23	2.69	.....	.54	.....
Total cars	.....	.....	.....	.....	.....	.....	9,213

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — MARCH 12, 1919 — No. 32

GREATEST HIGHWAY BUILDING ENABLED BY NEW U. S. LAW

Added Appropriation Makes Largest Amount for Roads in History

Definition of Projects that May Benefit is Widened, With Other Provisions Looking to Unparalleled Development in This Country

With full State cooperation according to the terms of the Federal-aid road act, the United States will have a total of at least $574,000,000 for cooperative road building during the next three years. The Federal part of this fund is assured by an extra appropriation of $209,000,000 in the Post Office appropriation bill recently passed by Congress and signed by the President.

Officials of the Bureau of Public Roads, United States Department of Agriculture, which administers the provisions of the Federal-aid road act and cooperates with the State governments in the expenditure of the money, point out that this amount of funds is the largest ever appropriated for similar purposes and for a similar period by any Government in the history of the world, and that it enables the Federal and State governments to carry out a road-building program of a magnitude never equaled.

In connection with the great Federal-aid program, it is also noted that expenditures for highway work in the United States this year are likely to amount to a half billion dollars or more. On reports received from State highway departments, the Bureau of Public Roads estimates the 1919 expenditures for roads and bridges at $385,000,000, or $110,000,000 more than the average expenditures for 1916 and 1917.

Road Definition Broadened

An important effect of the law containing the new appropriation is that it broadens the definition of a rural post road, under which class a highway had to qualify in order to receive the benefits of the Federal-aid act.

Under the old act it was required that mail should actually be carried on the road or that there should be a reasonable prospect that mail would be carried on it within a short time after improvement. The new act says, "* * * the term 'rural post roads' * * * shall be construed to mean any public road a major portion of which is now used or can be used or forms a connecting link not to exceed 10 miles in length of any road or roads now or hereafter used, for the transportation of the United States mails, excluding every street, and road in a place having a population, as shown by the latest available Federal census, of 2,500 or more, except that portion of any such street or road along which the houses average more than 200 feet apart."

Government Limit Raised

The new act also raises the Government limit of contribution from not to exceed $10,000 a mile to not to exceed $20,000 a mile, taking account of higher present costs of labor and materials.

The law also authorizes the Secretary of War to transfer to the Secretary of Agriculture material, equipment, and supplies suitable for highway improvement and not needed by the War Department.

Of the $209,000,000 added to the funds available under the Federal-aid road act, the new law makes $9,000,000 available for expenditure by the Secretary of Agriculture for roads and trails within

(*Continued on page 7.*)

KEEP THE HOME WOODLAND GROWING.

In case of fire you will find a home-grown barn a very convenient means of replacing the loss and a great saving in money. Keep the home woodland growing.

When there is a strike in the coal mines you will find it very comfortable to have plenty of home-grown wood. Keep the home fires burning.

When you need extra money to pay off a mortgage, a doctor's bill, or for a college education for the children, you will find a reserve fund in the woodland handy. Keep the home folks protected.

MAY BAR FOREIGN CEREALS TO KEEP OUT BAD DISEASES

Department Calls a Hearing To Consider Proposed Quarantine

Flag Smut and Take-All Maladies, Prevalent Abroad, Threaten United States; Danger in Importation of Seed

Prohibition or restriction of movements of wheat, rye, barley, oats, and rice to Continental United States from Australia, Japan, India, Italy, France, Germany, Belgium, Great Britain, Ireland, and Brazil is believed by the United States Department of Agriculture to be necessary on account of the prevalence in those countries of the flag smut and take-all diseases.

The former affects wheat alone, and the latter wheat, rye, barley, oats, and rice. A hearing, to determine whether or not a quarantine is necessary, will be held at 10 o'clock, March 25, in the offices of the Federal Horticultural Board, Washington, at which persons interested in the proposed quarantine may be heard, either in person or by attorney.

Diseases Are Destructive

Both of the diseases are very destructive. Flag smut affects the leaf blades, leaf sheaths, stems, and sometimes the spikes of wheat. Usually every shoot is affected, the leaves wither and the spike is frequently replaced by a mass of twisted leaves. The spores are carried on the seed and live over in the soil. In portions of Australia losses from this disease run from one-tenth to one-half of the crop.

The take-all disease, known also as whitehead and footrot, attacks the roots and base of the plants, rotting the roots and blackening the base of the stems. Young wheat plants speedily wither and die. Older ones may survive, but rarely produce grain. Heavy losses have been sustained in all countries where this disease occurs.

The danger to the United States lies in the possibility of importation of the cereal grains for seed purposes. Hitherto, there have been no considerable com-

mercial importations and, therefore, these diseases have not been introduced. The danger from imported seed, and also the possibility of introducing the diseases through possible commercial shipments from Australia, where there has been a large accumulation of wheat, make it necessary to consider quarantine action. It is not improbable, according to the Department of Agriculture, that methods of treatment by exposing the grain to steam or dry heat may be found practicable. Such treatment would render the grain worthless for seed purposes, but probably would not decrease its value for feed or manufacturing purposes.

Vermont Boys and Girls Make Half a Ton of Maple Sugar

When sugar was scarce last year, hundreds of boy and girl club members began raising sugar beets and keeping bees to help supplement the cane-sugar supply. In Vermont, the boys and girls who belonged to the clubs organized by the Department of Agriculture and the State Agricultural College decided to do their bit by increasing the production of maple sirup.

Last year the leaders of the boys' and girls' clubs undertook to have sirup making one of the chief projects of the clubs in the State. One club in Lyndon was given the use of a 1,000-tree orchard and this was run as a demonstration camp. Twenty boys were employed to break roads, gather sap, chop wood, stoke fires, and boil, strain, and deliver the sirup. The best methods were taught in this camp and absolute cleanliness was insisted upon. The output was judged to be among the best made in the State, and the boys took much interest in doing the work so the standard would be maintained. A festival concluded the work of the season, with 1,000 people attending. The proceeds were used to carry on the work of the club for prizes, expenses of exhibits, etc. The work will be continued this year.

One little girl in Caledonia County gives the following report of her maple sugar work: "I love outdoor work and thought I would like to make maple sirup, so I hired my grandfather and horse to help me tap the sugar trees. I paid him 20 cents an hour. I was able to borrow 57 wooden buckets which I needed for the work. I took them home, tightened the hoops, and washed them thoroughly before using.

"I tapped the trees 2 or 3 feet from the ground and bored the holes 1½ inches through. Into these we drove the spouts on which we hung the buckets.

"While waiting for the sap to run we built an arch and a sap gatherer. I took the sap to the sugar house and strained it through a flannel cloth and boiled it to 216°. This sirup was then strained through several thicknesses of flannel into a milk can to take home. It was allowed to settle over night and was boiled the next day for sirup at 219° and for sugar at 232°. To make maple cream, I cooled the sirup to 90° and stirred it until creamy. I made and sold $66 worth of sugar. My expenses were $35. With the $31 profit I bought a Liberty bond on installments. The rest of the money for the bond I raised by selling the products from my club garden in the summer."

Nine thousand nine hundred and twenty-eight pounds of sugar and 1,138½ gallons of sirup, with a value of $5,328.25, were made in Vermont by the boy and girl club members during 1918.

Can America Grow Its Fruit Stocks? Department Would Help Industry Grow

The soils of France and America, as well as the souls of those two countries, have been blended—literally.

The most notable instance of the incorporation of American soil into the soil of France was the taking to France of several barrels of American earth in which to bury the body of Lafayette, but French soil has been incorporated into American soil in literally millions of places. Probably every county in the United States has its admixture of French dirt, and it is scarcely too much to say that some particles of it have found their way to practically every farm throughout the length and breadth of the country.

How did it come? On fruit stocks. The above-ground portion of your fruit trees may be pure American, but the underground portion is very likely to be foreign. With the exception of the apple and peach, most of the seedling plants on which grafting or budding is done are imported, and even with the apple, though considerable progress has been made in producing American-grown seedlings from imported French seeds, many nurserymen have thus far preferred to import apple seedlings from France and to pay more for them. Just now, however, rather determined attention is turned toward a solution of the problem of fruit-stock production in this country. All of the peach stocks are now "home" grown from seeds produced in this country.

Fruit Culture Depends on Stocks

"We are beginning to appreciate more and more," says one of the plant pathologists of the United States Department of Agriculture, "that our future successful fruit culture is intimately associated with the problem of stocks. With the exception of the grape, no far-reaching studies have been made on stocks in this or any other country. We have followed certain empirical practices in the past, but as competition becomes greater and the demand for the highest grades of fruit and plant products increases, we must know more of the actual relation of stocks to quality of product, to the length of life of the tree or plant, to adaptability to soil and climate, to resistance to disease and insect attacks.'"

Would Produce Stocks Here

One of the questions to be solved, according to the Department of Agriculture, is the practicability of producing in this country the millions of ordinary apple, pear, plum, and cherry stocks which hitherto have been secured largely abroad. Another need is the systematic study of stocks with a view to their improvement and better adaptability to the wide variety of conditions and needs that exist here and that are likely to develop as the fruit industry becomes more complex. If fruit industries are to be maintained, the department thinks it is imperative that there be available full supplies of the ordinary stocks, and it is desirable to find or develop stocks that may prevent some of the losses from insects and diseases.

"If stocks are to be produced in this country to take the place of those hitherto secured abroad," the statement continues, "it would seem proper that efforts should be made by the Government to aid those who are anxious to know where the work can best be done and how it may be done to the best advantage. The problems involved are so complex that private interests can not well handle them. The chief problems are to find regions and soils in this country where stocks may be commercially grown and to demonstrate on a commercial scale that such stocks are equal to or better than those grown abroad. Correlated with the problem of commercial stock production is that of securing seeds for stocks. There is need for developing our home supplies. This is a long-time proposition, as there are few recognized sources of supply here, such as exist in Europe."

Judicious Grazing Increases Sod Yield; Grass Lands Need Careful Management

With feed stuffs high in price and pasture resources subnormal, due to the extensive breaking of permanent sods for grain production during the last few years, the United States Department of Agriculture emphasizes the need for better management and utilization of grazing lands during the coming grass season. Although the aggregate value of the product of pastures far exceeds the annual value of the corn crop, many farmers neglect the health and vigor of their grass lands, and are likely to follow the line of least resistance in pasture management.

Pasture management, as outlined by grazing experts, involves such practices as harrowing the grass areas; alternating the animals between fields and not grazing continuously; reseeding the fields to clovers or tame grasses occasionally; top dressing the pastures with manure or commercial fertilizers; keeping down the weeds; allowing the grass to get a good stand in the spring before turning stock into the fields, and by grazing closely. Bluegrass pastures improve with age to a certain extent. Some of the best sods have stood for 50 years and to-day are productive of as much gain in live weight or as heavy a flow of milk as they were originally. On the other hand, some of the old sods are becoming foul with briars, broom sedge, and other weeds, due to neglect and improper handling.

Alternate Grazing Means More Pasture

Alternate grazing as a relief for continuous grazing has long been recommended by experts, but little practiced by farmers. It involves the division of pastures so that each portion of the field may be given alternate periods of rest during the grazing season. Grass makes a maximum yield if allowed definite periods of uninterrupted growth. However, the extra expenses for fences and labor deter many farmers from following this system which, although it is adapted for practice in some sections of the country, it is not so favorable in others.

Cultural treatment, such as disking and harrowing, are recommended where a sod-bound condition of the grass develops, as the slight mulching of the surface obliterates weeds and also improves the mechanical and physical condition of the soil. Generally speaking, there is considerable expense attached to disking and harrowing, and unless the returns are commensurate with the cost, a farmer is scarcely justified in thus treating his grazing lands, particularly if other work on the farm is competing for his attention at the same time.

The average disk will cut and turn sods to some extent no matter how nearly straight it is set, and on this account its use is often more detrimental than beneficial. Ordinarily, in the case where the ground is inclined to be wet at the time of treatment, a considerable portion of the turf may be turned up, while if dry weather follows permanent injury to the pasture is quite likely to result. A spike-tooth harrow following the disk usually drags the loosened pieces of sod some distance away, thereby leaving numerous areas of considerable size entirely bare. This happens more especially on slopes where a complete covering is difficult to maintain, even under the most favorable conditions. The spike-tooth harrow, when used alone, is less likely to loosen large pieces of sod than when used in conjunction with the disk. Its use during the spring over numerous small areas of ungrazed grass where the droppings from animals have fallen is beneficial in that it uniformly distributes this fertilizer.

Get Maximum Benefits from Pasture

A prolific cause of the decline of pastures results from not stocking them properly. Farmers are frequently advised to graze their fields lightly if they wish to keep them permanently productive, the depleted western ranges being cited as glaring examples of what happens where overgrazing is permitted. Such advice is misleading for humid eastern conditions. It is poor farming to fail to realize the maximum benefits from the native grass crop. The ambition of the average stockman should be to realize the largest total gain per acre or the maximum gain per individual animal, or the highest possible production of milk, wool, pork, or mutton from the grazing areas without jeopardizing their future production. Where heavy beef cattle are produced it is not practicable to graze too closely, as the animals will not make sufficient gains to sell profitably. But with young cattle or dairy cows, the risk would not be nearly so great, and the benefit derived from close grazing would far exceed the chance for loss. The extent and duration of the grazing is an individual matter for each farmer to decide, but in making this decision he should bear in mind that many of the unproductive and so-called run-down pastures in the best sections of the bluegrass region have resulted from too light rather than from too heavy grazing.

Grazing a pasture to capacity usually operates to prevent the development of weeds, as well as to maintain a fine, even turf. The bluegrass, red top, white clover, and other good pasture plants thrive and spread if kept closely grazed, while most weeds can not live if their tops are cut off frequently. As a rule, in the average pasture the heavily grazed portions are comparatively free from weeds and possess a better sod than the area on which the grasses are too mature to be eaten by live stock, where the weeds usually run rampant. Furthermore, the character of the turf on a heavily grazed field will steadily improve, while that on a lightly grazed area will deteriorate correspondingly, according to the results of extensive grazing experiments.

Pays to Battle Weeds

The weed problem as it relates to the handling of pastures is a vital one, as weeds are not only unsightly, but they also occupy land that should be engaged in the production of valuable forage. This is why it pays the farmer to battle the weeds as insistently as possible during the grass season. Some farmers keep a mowing machine running over their pastures most of the summer with very satisfactory results. Often weeds indicate depleted soil fertility. The poorest soils have more weeds than tame grasses, while on the richer soils the tame grasses tend to crowd out the weeds. In many instances a top dressing of stable manure or the feeding of cattle during the winter on a piece of land infested with broom sedge, which is common in some sections of the bluegrass, are effective in the extermination of this pest. Applications of acid phosphate or nitrate of soda, alone or in combination, have also been efficient in the eradication of broom sedge in addition to improving the stands of bluegrass and white clover. Under existing conditions it is profitable to apply between 200 and 300 pounds of acid phosphate an acre every five years on the ordinary bluegrass pastures.

PLANTING FRUITS IN NORTH

In the North and wherever the winter conditions are severe on plant life, either from low temperatures, driving winds, or other causes, fruits are usually planted in the spring as early as the soil can be put in suitable condition. It is important that they be set out while the plants are dormant and before the buds have started.

WOULD AID WINE GRAPE MEN READJUST FARMING METHODS

Department Suggests Currants as Good Prohibition Product

Grape Sirups Another Possibility; Raisin Growing Not Practicable in Region Affected; Many Factors Seen in Situation

How to help growers of wine grapes readjust their farming to meet new conditions under national prohibition is a problem receiving the attention of the United States Department of Agriculture. Most of the growers in California, principally in the bay counties around San Francisco, where about 200,000 acres of wine grapes are grown, have depended wholly upon these vineyards for their support. The department sees a ray of hope in the complex situation through conversion of a small proportion of this acreage into currant grapes.

Raisin Production Not Practicable

Perhaps thought has turned, somewhat naturally, toward a conversion of the wine vineyards into raisin vineyards. This, the department experts think, would be folly. Climatic conditions in the wine vineyard districts are such that raisin grapes could not be cured. They ripen at a time when the fall rains are beginning, and, with rare exceptions, would represent practically a total loss. But even if the curing could be effected by artificial means, the matter of relative yields would make the raisin industry in the dry wine vineyard regions unprofitable. The yield of the raisin grape varieties there ordinarily does not exceed 3 to 6 tons to the acre. In the raisin vineyard districts yields range from 6 to 20 tons an acre. This difference would render it impossible for vineyardists in the former region to compete with those in the latter in raisin production.

Some hope is held out, however, for the successful conversion of some wine vineyards into currant vineyards. Currant grapes ripen very early and would be ready for curing in the dry wine districts before the fall rains begin. Their yield, under favorable conditions, is relatively high, running from 4 to 8 tons to the acre.

May Increase Currant Use

There is an established market in the United States for about 30,000,000 pounds of dried currants annually, department specialists say. That was the average quantity annually imported prior to the beginning of the European war. The demand for them has become thoroughly fixed and may be fairly depended upon. From 8,000 to 10,000 acres of grapes would be necessary to meet this demand, heretofore supplied from abroad. Domestic consumption of currants, no doubt, could be greatly increased by proper educational efforts, thus affording a larger possibility for the conversion of wine vineyards.

This conversion could be accomplished and would pay only where the vines are phylloxera resistant, comparatively young, and have not previously been grafted.

Experiments with Currant Grapes

For about 15 years the Department of Agriculture has been experimenting with currant grapes in California.

Two cardinal points must be observed, the department says, in order to grow the choicer currant grapes successfully. They should be grafted on phylloxera-resistant stocks congenial to them, but such stocks must also be suited to the soil and other conditions. In an extensive test on various resistant stocks, a sufficient number of varieties of these stocks has been found from which to select such as are adapted to the various soil types and other conditions and that are congenial to currant grapes.

The other essential is that the vines be thoroughly girdled at blooming time. It has been definitely ascertained that this is necessary to make the blooms set and to secure a full crop of fruit. This girdling consists in making two parallel cuts entirely around either the trunks, arms, or canes of the vines and taking out the bark between the cuts. The girdling must be thoroughly done and it must be done while the vines are in bloom.

Grape Sirups Another Possibility

There may be possibilities for the wine vineyardists in the making of grape sirups. As the University of California has pointed out, the manufacture of sirups could be accomplished with comparatively little expense for special equipment, as some of the wineries already have sirup-making machinery, and much of the equipment used in wine making is also used in sirup making.

A table sirup produced from grapes necessarily would be a high-priced sirup. It could not compete with the commoner kinds of sirup in price, and the establishment of special markets for it among discriminating consumers would be necessary. Something has already been attempted in the way of manufacturing preserving sirups from grapes. This might offer rather a large outlet were it not for the fact that canners thus far decline to use such sirups and prefer paying more for the sugar sirups they have used, as they feel that their canned products, if sweetened with grape sirup, might be discriminated against by consumers who are accustomed to canned fruit sweetened with sugar.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 1, 1919:

A Study of the Effect of Storage, Heat, and Moisture on Pyrethrum. (Professional paper.) Department Bulletin 771.

Growing Fruit for Home Use. Farmers' Bulletin 1001.

Hay Stackers. How They May Be Used in the East and South to Save Labor. Farmers' Bulletin 1009.

Propagation and Culture of the Date Palm. Farmers' Bulletin 1016.

Straining Milk. Farmers' Bulletin 1019.

Hatch Early. Early Hatched Chicks Produce Best Results. B. A. I. G-28.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

POTATO STOCKS NORMAL

Stocks of marketable potatoes in the United States on January 1 were nearly normal, being neither excessively large, as was the case a year before, nor abnormally small, as was the case two years before. In the important potato sections of the Northern and Northeastern States the amount remaining to be marketed on January 1 was probably slightly less than average; in the Southern States and the far Western States, particularly Idaho and Washington, remaining stocks appear to be somewhat larger than in an average year, though less than holdings a year before.

FILLING UP THE ORCHARD

It is possible to plant between apple trees, when set 32 feet apart, smaller growing trees, such as the peach or plum, placing one between each two trees in the row, as well as planting a row in the center of the spaces between the tree rows. This is a temporary arrangement, however, since the apple trees will eventually need all the space. Before crowding begins the interplanted trees should be removed.

In setting out raspberries, blackberries, dewberries, and strawberries, young plants which grew the preceding season are generally used, except when they are planted in the autumn. In that case plants of the current season's growth are used.

17-YEAR LOCUST GOING, GOING SLOWLY; SOME DAY TO BE GONE

Periodical Cicada Moving Toward Haven of Creatures That Were

Scientists See "Something Regrettable" in Extinction of Interesting Insect; New Circular Gives Protective Measures

Have you an ideal of the absolute in hopelessness?

Well, let it be said that the house in which you live is comparatively new—built within the past 17 years. The ground on which it stands was originally woodland. In the summer of 1902 all the trees thereabouts were full of 17-year locusts. Eggs were deposited in the branches, the larvæ came out, dropped lightly to the ground, and dug in. The long period of subterranean existence is almost ended. In May of this year the insects will start toward the light and air—and will come in contact with the concrete floor of your cellar! There may be another situation as hopeless, but certainly none more so.

That clearing up of woodland for the building of houses and for cultivation is the principal agency that is making the 17-year locust, whose real name is the periodical cicada, a vanishing species. Dr. Gideon B. Smith, one of the earlier scientific observers, allowed rather a melancholy note to creep into his invaluable manuscript when he wrote that future generations, if they read his writings at all, would shake their heads and think of him as a romancer. In the same note, also, C. L. Marlatt, one of the latest systematic observers, writes in his bulletin, "To the lover of nature, there is something regrettable in this slow extermination of an insect which presents, as does the periodical cicada, so much that is interesting and anomalous."

Thus, the present-day experts of the United States Department of Agriculture agree with the early observer that the time will come when there will be no periodical cicadas left.

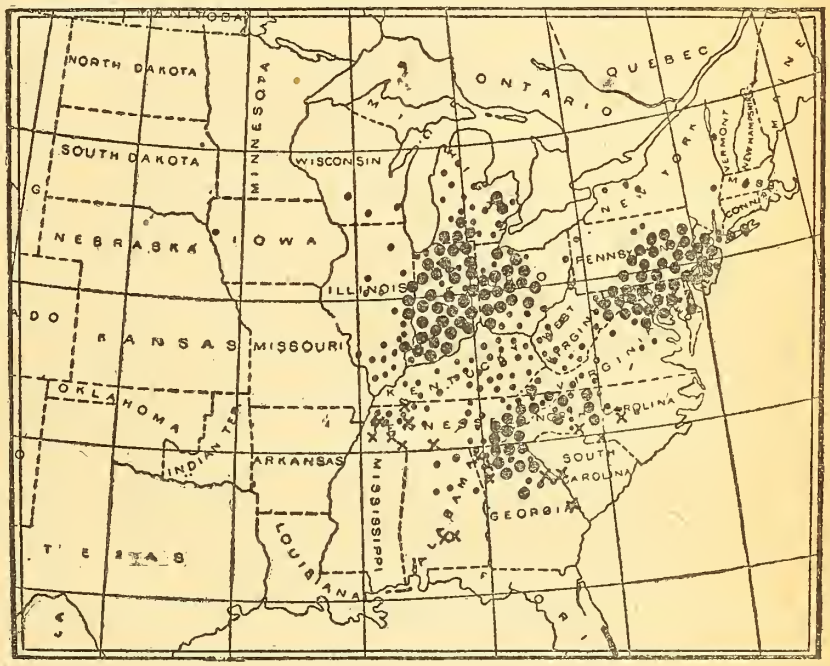
But End Is Not Near

That time, however, is a long way off. There will be multiplied millions of them this year and in other years to come. For many persons the cicada will be as new a sight as it was to the first observers when they came from Europe to the American forests. Modern writing on the subject is done, of course, in the light of all the observations that have been made through more than 200 years. They lack the freshness of the writings of men who saw the cicada before a literature of the insect had been built up. Those early writings, therefore, possess an unusual interest.

In 1669 Nathaniel Moreton, who lived at Cambridge, Mass., wrote "New England's Memorial." In it he told of "a kinde of a pestilent fever" that had prevailed in 1633 and "carried off many of the whites and Indians in and near Plimouth."

"It is to be observed," he says, "that the spring before there was a numerous company of Flies, which were like for bigness unto Wasps or Bumble-Bees, they came out of little holes in the ground, and did eat up the green things, and made such a constant yelling noise as made all the woods ring of them and ready to deaf the hearers."

The old gentleman is to be excused for believing that the cicadas "did eat up the green things." The appearance of the dead and withered branches doubtless was such as to justify such a conclusion.



Territory in which the Periodical Cicada will appear this year. Large dots indicate dense and small dots scattering colonies of 17-year Brood 10. Crosses (x) indicate the colonies of 13-year Brood 18.

One "T. M.," supposed to be Thomas Matthews, son of Gov. Samuel Matthews, of Virginia, who observed the cicadas in 1675, fell into the same error.

"The third strange appearance," he writes of the disasters of that year, "was swarms of flies about an inch long and big as the tip of a man's little finger, rising out of spigot holes in the earth, which eat the new-sprouted leaves from the tops of the trees without other harm, and in a mouth left us."

What Another Observer Saw

Pehr Kalm a number of years later was a more accurate observer. He wrote a report on America for the Swedish Government, in which he said:

"There are a kind of locusts which about every seventeenth year come hither in incredible numbers. They come out of the ground in the middle of May and make, for six weeks together, such a noise in the trees and woods that two persons who meet in such places can not understand each other unless they speak louder than the locusts can chirp. During that time they make, with the sting in their tail, holes in the soft bark of the little branches on trees, by which means these branches are ruined. They do no other harm to the trees or other plants."

For nearly 300 years, then, the written record of the cicada has been piling up, undergoing corrections now and then, receiving new discoveries from time to time. As nearly as can be judged, it is complete now. The latest addition is a circular, "The 17-Year Locust in 1919," written by Dixon Merritt, of the Office of Information, United States Department of Agriculture. It does not pretend to present new facts, but it gives a succinct history of the cicada and the protective means that can be taken against it. The circular will be available to interested persons in the 21 States where the periodical cicada will appear this year.

Most fruits can be grown on a great variety of soils, but where possible it is better to avoid light, sandy soils, and heavy clays. The latter are often difficult to manage in the intensive way necessary for the best success with fruit, while the light soils are likely to be affected by the extremes of heat, cold, and drought.

"Superstitions" Become a Science; How Natural Signs Tell Time for Farming

You have heard them say—the old farmers in the neighborhood in which you were brought up—that when the little, late, stunted cocklebur weeds an inch or two high began to mature their burs, it was time to get the late crops under cover because frost would be along in a few nights. The catkins on the maple trees had something to do with early gardening. The women used to watch for blackberry blossoms—had something to do with planting beans, didn't it? And either the opening of the elder flowers or the ripening of the elderberries fixed the time for some summer operation—maybe it was sowing turnip seed, or it may have been harvesting the early onions. And there was a great deal more of the same kind. Nearly every field and garden operation depended on some tree or flower—a mass of misinformation, interesting as folklore and all that, but utterly useless as aids to productive farming.

That is what you thought, perhaps. It is what a great many thousands of people have thought. All those "superstitions" did not fit in with the little bit of cocksure science that every boy and girl learned in school. It was merely something for well-meaning old fogies to putter around with and for well-informed people to smile at.

Not Mythical, Says Science

Comes, now, the United States Department of Agriculture and says that such lore is not superstition and never was, that it is not useless and never was, but that, on the other hand, it is and has always been one of the most accurate aids possible to the right sort of agriculture. Here is the opinion, in the language of one of the Department's scientists:

"Properly recorded and correctly interpreted, there is nothing perhaps to equal the records of the dates of periodical events in plants as indices to the bioclimatic character of a place or local area, because such events are in direct response, not to one or a few, but to all the complex elements and factors of the environment which no artificial instrument or set of instruments yet available will record."

What that means, in plain language, is that there is a best time for every farm and garden operation, and that some tree or shrub or plant indicates that best time more accurately than all the scientific instruments can possibly register it.

The only restriction is that this nature lore with relation to crops be "properly recorded and correctly interpreted." The "superstitions" that you smiled at were all the while the basis of a very useful and very exact science—only nobody had ever systematized it.

Phenology Can Help Agriculture

"Very little specific study," say the same scientists of the Department of Agriculture, "has been made in this country of the subject of index plants to determine their relation to different periodical events in farm and garden practice, especially with reference to the relative value of different species and varieties as to the constancy of their periodical responses to seasonal influences year after year. Therefore, it is apparent that among the subjects requiring thorough systematic investigation that of the relation of phenology to agriculture is among the most important."

You see, this system that the old fogies followed was the science of phenology—only it was not scientifically gotten together. "Phenology" means the science of phenomena. No human being has ever yet known it in its completeness. Many hundreds of years ago a wise man, though probably an unlettered one, picked up a bit of it here and there and practiced it and told it to his children, and they practiced it and in turn told it to their children. So it came down by word of mouth through many generations, with accretions here and there, every generation adding a little, but each generation likely to confuse and wrongly apply what it had inherited from the preceding generation. Some if its results may have been wrong, because men failed to remember accurately or to apply properly what their grandfathers had told them or what they had learned for themselves, but, on the whole, it doubtless has worked beneficially, and now a beginning is made toward converting it into an exact science.

You can have no idea of just how scientific the thing is. It is all full of such terms as "phenological meridians," "bioclimatic law," "isophanes," "theoretical time constant." It abounds in such quations as "isophane 44b—34b equal 10 isophanes×4 equal 40 days later." It involves platted curves, graduated diagrams, and world maps with zigzag lines running through them. It is the most mathematical, geographical, and biological "superstition" you could imagine.

Practical With Hessian Fly

The Hessian fly may be said to have started it all. Its depredations were such that it was necessary to sow wheat so late that the Hessian fly would not ruin it and yet early enough that it would get a start before very cold weather. The Department of Agriculture undertook to establish a system of planting dates for every section of the United States in which wheat is grown. It was not possible to make investigations in every field to determine the right time for planting. What had to be done was to establish one correct time and work out the others from it. The rule was laid down that the season, in general, varies four days for each 1 degree of latitude, 5 degrees of longitude, and 400 feet of altitude. That is a perfectly good, workable rule. A disk calendar and other mechanical devices have been gotten out to aid the farmer in applying it. By it any farmer can determine about what time he should sow his wheat. But he can not determine by it exactly what time he should sow his wheat. And it would work out the same way for planting any other crop. No two seasons are just the same. The date that is right this year may not be right next year.

But if, on the day that was right for planting cotton this year, the locust trees were just coming into bloom, the probability is that the right day next year will be the day on which the locust trees are beginning to bloom, though it may be 10 days later or 10 days earlier than the year before. If, for 5 or 10 or any number of years, it is determined that the best day for planting cotton seed is the day on which the locust trees are beginning to bloom, the blooming becomes a pretty reliable index as to when to begin planting. That, of course, is a supposititious case. Locust blooms are not known to have any relation to cotton-planting time. But the time for sowing winter wheat has been determined upon as the period between the time when the tall late goldenrod is in full bloom and the time when the white common Japanese clematis flowers are nearly all gone or the leaves are distinctly colored on the dogwood and hickories. At least, that is the verdict of Dr. A. D. Hopkins, the scientist of the Department of Agriculture who has been quoted several times before.

Applying the New Science

And that is what the application of the science of phenology to agriculture will be when it is worked out—a definite something in nature that will indicate the

right time for doing a definite thing in the farm operations. It will be rather a slow process. Dr. Hopkins has worked out forms for gathering index material on practically all trees, shrubs, and plants, annual and perennial, wild and cultivated, with regard to the various crops. In the course of years qualified agricultural experts will gather and systematize the data.

In the meantime—well, any individual farmer may have some of his natural phenomenon indices wrong, but he is likely to have a good many of them right. If he will use his own powers of observation and his own judgment, he can correct them for himself from time to time. Any intelligent farmer who will take the trouble can work out a pretty good system for himself. And the Department of Agriculture will be able to give him more and more aid from year to year.

Dr. Hopkins has recorded the results of his work in a Weather Bureau publication entitled "Periodical Events and Natural Law as Guides to Agricultural Research and Practice," but it is too technical for the average reader—in fact, it is not meant for the average reader. At the present stage of the investigations reports of progress are for scientific workers. As the research develops workable, reliable indicators they will be announced.

After all, the successful practice of phenology is individual application of observation and common sense to the common things around the individual.

WOOL CONSUMPTION DROPS

Manufacturers used only 38,200,000 pounds of wool, grease equivalent, in January, 1919, a drop of 26,900,000 pounds from the consumption in January last year.

Wool consumed by classes, in pounds, as given by the Bureau of Markets, Department of Agriculture, for January of both years, with 1918 figures first, were: Grease, 40,886,534—26,101,046; scoured, 10,447,387—5,281,878; and pulled, 2,493,966—1,191,046.

States, in order of their consumption for January of this year with their order for January, 1918, indicated by numbers in parentheses, were: Massachusets (1), Rhode Island (3), Pennsylvania (2), New Jersey (4), New York (5), New Hampshire (9), Connecticut (6), Ohio (7), and Maine (8).

HORSES AND MULES LOST IN WAR

This country was not long enough engaged in war operations in western Europe to suffer very large losses of horses and mules. To December 25, 1918, the total losses overseas amounted to 36,189 horses and 6,122 mules, and on that date there were with the American Expeditionary Forces 26,023 cavalry horses and 109,528 draft horses, a total of 135,551; and 48,614 draft mules and 7,466 pack and riding mules, a total of 56,080.

MUCH WOOL MACHINERY IDLE

Nearly 50 per cent of wool looms in the United States were idle on February 1, compared to 38 per cent on January 1. Other idle wool machinery, according to figures given out by the Bureau of Markets, United States Department of Agriculture, includes 39 per cent of cards, 40 per cent of combs, 41 per cent of woolen spindles, and 49 per cent of worsted spindles. Of machinery reported in operation, 4 to 14 per cent was running 40 hours or less each week.

GREATEST HIGHWAY BUILDING ENABLED BY NEW U. S. LAW

(*Continued from page 1.*)

or partly within the national forests. It also provides other measures which are expected to give great impetus to the development of the road systems in the national forests.

The original Federal-aid road act, which became law in July, 1916, appropriated $75,000,000 to aid in the construction of post roads during a five-year period ending June 30, 1921, and $10,000,000 to aid in forest-road building during a 10-year period ending June 30, 1926. Not over $3,000,000 of the original $85,000,000 had been expended prior to 1919, so that $82,000,000 plus $209,000,000, or a total of $291,000,000 of Federal funds, will be available, of which $287,000,00 will be available during the next three years. The act and its amendment require the States to provide at least an equal amount on the post-road work, and it is customary for the States and localities to contribute toward the forest-road work.

In the accompanying table of apportionment is shown approximately what each State will receive in Federal aid to post roads under the terms of the original act and under the amendment.

APPROXIMATE APPORTIONMENT OF FUNDS UNDER FEDERAL AID ROAD ACT AND AMENDMENT THERETO.

State.	Amount available for fiscal years 1917, 1918, 1919.	$50,000,000 for fiscal year 1919.	Fiscal year 1920 allotment.	Fiscal year 1920 $75,000,000.	Fiscal year 1921 allotment.	Fiscal year 1921 $75,000,000.	Grand total.
Alabama	$625,903.17	$1,050,264.10	$420,105.64	$1,575,396.15	$525,132.05	$1,575,396.15	$5,772,197.26
Arizona	411,081.14	685,043.57	274,017.43	1,027,565.36	342,521.79	1,027,565.36	3,767,794.65
Arkansas	498,085.77	840,229.53	336,091.81	1,260,344.30	420,114.76	1,260,344.30	4,615,210.47
California	909,358.99	1,524,248.30	609,699.32	2,286,372.45	762,124.15	2,286,372.45	8,378,175.66
Colorado	508,349.34	867,570.90	347,028.36	1,301,356.35	433,785.45	1,301,356.35	4,759,446.75
Connecticut	185,487.77	307,064.65	122,825.86	460,596.98	153,532.32	460,596.98	1,690,104.56
Delaware	48,965.10	81,384.45	32,553.78	122,076.68	40,692.22	122,076.68	447,748.91
Florida	338,652.69	573,797.20	229,518.88	860,695.80	286,898.60	860,695.80	3,150,258.97
Georgia	806,897.89	1,346,044.75	538,417.90	2,019,067.12	673,022.38	2,019,067.12	7,402,517.16
Idaho	363,862.05	610,509.27	244,203.71	915,763.91	305,254.64	915,763.91	3,355,357.49
Illinois	1,321,102.17	2,185,550.65	874,220.26	3,278,325.97	1,092,775.32	3,278,325.97	12,030,300.34
Indiana	813,473.04	1,349,919.40	539,967.76	2,024,879.10	674,959.70	2,024,879.10	7,428,078.10
Iowa	873,180.41	1,443,046.20	577,218.48	2,164,569.30	721,523.10	2,164,569.30	7,944,106.79
Kansas	858,754.08	1,436,313.93	574,525.57	2,154,470.89	718,156.96	2,154,470.89	7,896,692.32
Kentucky	585,400.35	976,965.17	390,746.07	1,465,297.76	488,432.59	1,465,297.76	5,372,039.70
Louisiana	406,179.27	680,729.03	272,291.61	1,021,093.55	340,364.51	1,021,093.55	3,741,751.52
Maine	290,161.92	481,231.35	192,492.62	721,847.33	240,615.78	721,847.33	2,648,196.53
Maryland	263,013.09	434,737.02	173,894.81	652,105.53	217,368.51	652,105.53	2,393,224.49
Massachusetts	442,814.70	736,883.30	294,753.32	1,105,324.95	368,441.65	1,105,324.95	4,053,542.87
Michigan	872,707.53	1,447,213.80	578,885.52	2,170,820.70	723,606.90	2,170,820.70	7,964,055.15
Minnesota	853,047.58	1,420,774.53	568,309.81	2,131,161.80	710,387.26	2,131,161.80	7,814,642.78
Mississippi	535,469.12	899,488.26	359,795.31	1,349,232.39	449,744.14	1,349,232.39	4,942,961.61
Missouri	1,017,765.21	1,695,314.11	678,125.64	2,542,971.14	847,657.05	2,542,971.14	9,324,804.29
Montana	593,382.46	999,467.15	399,786.86	1,499,200.73	499,733.58	1,499,200.73	5,490,771.51
Nebraska	639,757.68	1,066,642.07	426,656.83	1,599,963.10	533,321.04	1,599,963.10	5,836,303.82
Nevada	386,424.72	642,933.45	257,173.38	964,400.18	321,466.72	964,400.18	3,536,798.53
New Hampshire	125,599.97	207,810.38	83,124.15	311,715.57	103,905.19	311,715.57	1,143,870.83
New Jersey	353,995.26	594,050.80	237,620.32	891,076.20	297,025.40	891,076.20	3,265,844.18
New Mexico	474,847.98	798,785.78	319,514.31	1,198,178.67	399,392.89	1,198,178.67	4,388,898.30
New York	1,501,835.01	2,487,956.40	995,182.56	3,731,934.60	1,243,978.20	3,731,934.60	13,692,821.37
North Carolina	685,702.23	1,139,977.47	455,990.99	1,709,966.20	569,988.74	1,709,966.20	6,271,591.83
North Dakota	458,015.09	768,360.27	307,344.11	1,152,540.42	384,180.14	1,152,540.42	4,222,980.46
Ohio	1,118,759.68	1,854,462.47	741,784.99	2,781,693.71	927,231.24	2,781,693.71	10,205,625.80
Oklahoma	691,906.34	1,153,055.50	461,222.20	1,729,583.25	576,527.75	1,729,583.25	6,341,878.29
Oregon	472,394.85	787,459.10	314,983.64	1,181,188.65	393,729.55	1,181,188.65	4,330,944.44
Pennsylvania	1,382,078.29	2,296,075.85	918,430.34	3,444,113.77	1,148,037.92	3,444,113.77	12,632,849.94
Rhode Island	69,969.51	116,530.95	46,612.38	174,796.43	58,265.48	174,796.43	640,971.18
South Carolina	430,437.00	717,297.05	286,918.82	1,075,945.58	358,648.52	1,075,945.58	3,945,192.55
South Dakota	486,013.67	810,720.68	324,288.27	1,216,081.02	405,360.34	1,216,081.02	4,458,545.00
Tennessee	683,123.95	1,132,103.50	452,841.40	1,698,155.25	566,051.75	1,698,155.25	6,230,431.10
Texas	1,752,770.13	2,926,219.37	1,170,487.75	4,389,329.05	1,463,109.69	4,389,329.05	16,091,245.04
Utah	341,613.62	567,592.10	227,036.84	851,388.15	283,796.05	851,388.15	3,122,814.91
Vermont	136,662.33	225,987.70	90,395.08	338,981.55	112,993.85	338,981.55	1,244,002.06
Virginia	597,102.90	992,052.95	396,821.18	1,488,079.43	496,026.48	1,488,079.43	5,458,162.37
Washington	432,183.03	722,367.25	288,946.90	1,083,550.87	361,183.62	1,083,550.87	3,971,782.54
West Virginia	319,525.27	532,009.10	212,803.64	798,013.65	266,004.55	798,013.65	2,926,369.86
Wisconsin	767,790.41	1,272,946.53	509,178.61	1,900,419.79	636,473.26	1,909,419.79	7,005,228.39
Wyoming	367,396.24	612,912.45	245,164.98	919,368.68	306,456.22	919,368.68	3,370,667.25
Total	29,100,000.00	48,500,000.00	19,400,000.00	72,750,000.00	24,250,000.00	72,750,000.00	266,750,000.00
Administration	900,000.00	1,500,000.00	600,000.00	2,250,000.00	750,000.00	2,250,000.00	8,250,000.00
Grand total	30,000,000.00	50,000,000.00	20,000,000.00	75,000,000.00	25,000,000.00	75,000,000.00	275,000,000.00

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

PLANT ENSILAGE CORN EARLY IN SEASON FOR GOOD YIELD

Planting ensilage corn last instead of first is an expensive mistake very generally made in northern portions of the United States. Strong germinating seed of ensilage varieties from farther south should be planted two or three weeks earlier than the home-grown seed, which is planted for the production of grain.

After several years of testing, the Office of Corn Investigations of the United States Department of Agriculture has established the following fact, which should be utilized by dairymen and ensilage corn growers of the Northern States: When large ensilage varieties from Virginia or Missouri, for example, are planted in Northern States late in May, they make a rapid, long-jointed, tender, succulent growth, and are so green when fall frosts occur that they are heavy to handle, low in feeding value, and make ensilage which is sloppy and too sour. But when planted in April or very early May, they make a slower, hardier growth, better withstand spring frosts and summer droughts, and reach a more advanced condition of maturity and produce more grain than when planted later. Fall frosts, not spring frosts, are most to be feared.

Early maturing, home-grown varieties do not need and may not be benefited by unusually early planting, but large-growing ensilage varieties are benefited. Though somewhat dwarfed by very early planting, the large ensilage varieties will, by nature, make ample stalk growth, and because of early planting will yield more and riper grain and make richer and sweeter ensilage. Early planting supplies the age necessary for maturation and reproduction.

Ensilage crops in the North are made much more profitable when these two points are observed:

Judge the crop by its feeding value and not by its height or weight, or the amount of labor necessary to silo it.

Although earlier planting necessitates earlier cultivation, it pays. Early cultivation dries and warms the soil surface. If it remains wet it remains cold, and the young corn can not grow. Stirring causes the surface to dry rapidly, absorb heat, feel warm to the hand, and the corn to grow, while near-by, uncultivated soil will remain cold, with corn at a standstill.

COUNTY IS REQUARANTINED AGAINST CATTLE FEVER TICK

In accordance with an order signed by the Secretary of Agriculture, the Federal quarantine against the cattle fever tick was replaced March 1, 1919, on Craven County, N. C. This county was released from quarantine on December 1 last, but the county authorities, the department states, have failed to provide the cooperation necessary to clean up the small amount of territory still infested.

The replacement of the quarantine means that interstate movement of cattle from Craven County may be made only in accordance with the regulations of the Secretary of Agriculture to prevent the spread of cattle fever, which is carried by the tick.

FINDS TWO MILK FILTERS ARE REASONABLY EFFICIENT

Although emphasizing that clean milk depends primarily on sanitary methods of production, dairy specialists of the United States Department of Agriculture report that milk strainers as commonly used also have a direct bearing on the quality of commercial milk. Certain kinds of strainers cause milk to appear clean, but fail to remove all impurities. Of all the milk filters in common use, only two—absorbent cotton and filter cloth—are reasonably efficient, according to the department, in actually improving the commercial quality of milk. Even these filters must be kept clean and changed frequently to insure satisfactory results. Detailed information on the proper care and use of strainers is given in a new Farmers' Bulletin No. 1019, "Straining Milk," which may be obtained on request from the Department of Agriculture.

According to reports from about 40,000 farms, wire-gauze strainers are in more general use than any other kind, but studies with the microscope show plainly that the meshes are much too large to hold back any but the very coarse impurities. One thickness of cheesecloth or other cotton cloth is only slightly more effective than a wire-gauze strainer, but when the cloth is folded to about eight thicknesses its ability to remove dirt in milk increases somewhat, but is still inefficient as compared to absorbent cotton or filter cloth.

Filter cloth, a specially made cotton cloth, smooth on one side and "fuzzy" on the other, was found reasonably effective. This cloth can be obtained from leading dairy supply houses. The milk should be poured on the fuzzy side, the fibers of which stand up like the nap of a carpet and remove all but a small percentage of the solid impurities. The most effective strainer of all, however, according to the experiments, was a layer of absorbent cotton placed between two thicknesses of cheesecloth.

At best, straining milk is a practice that makes milk appear clean and, therefore, more easily salable, but no strainer removes either the bacteria and objectionable flavors or the very fine dirt. As a consequence, straining milk fails to improve its wholesomeness to any noticeable degree. Clean milk is best obtained by sanitary methods which prevent, so far as possible, the entrance of dirt into the milk. This can be done best by having clean cows in a clean stable and milking with clean hands into sterilized small-top pails.

It does not take a very large piece of land to produce all the food for a human being, and there is still enough idle land in and around cities and towns to grow all the vegetables of certain kinds required by the people of these towns.

Few gardeners realize the importance of pulverizing the soil as deeply as it is plowed. No matter how perfectly the surface is prepared, if the soil is coarse and lumpy below, the plants will not thrive. Large air spaces in the soil are a detriment, but a large number of very small air spaces in the soil are a benefit.

Vaccinating Stocker and Feeder Hogs To Protect Country's Swine Industry

In an effort to protect the swine industry of the country against the possibility of introducing sick hogs into well herds, and at the same time to permit the shipment from stockyards of stocker and feeder hogs, the United States Department of Agriculture conducts a system of vaccination against cholera as a part of its inspection service at the various stockyard centers.

More than 324,000 hogs were immunized for shipment as stockers and feeders from stockyards of 18 cities during the six months from July to December, 1918, inclusive. To accomplish this without spreading disease in the face of all the attendant dangers, required such close care that the wisdom of some phases of the inspection system may not have been always apparent to all concerned. A description of the conditions under which stockers and feeder cattle are inspected is contained in a statement recently issued by the Bureau of Animal Industry of the department.

With swine moving by carloads and trainloads from producing areas into public stockyards of the country, says the statement, the pens of such yards are inevitably infected with the common swine diseases, of which cholera is the most important. Owing to this condition Federal regulations formerly required the slaughter of swine received, but after the serum and virus treatment against hog cholera was standardized, the possibility of reshipping immature hogs for further feeding resulted in a modification of the rules. Under the plan now in force swine properly vaccinated and disinfected may be reshipped for any purpose, including breeding.

Purpose and Methods of Inspection

Immunizing hogs against cholera is a veterinary procedure, including the preventive-serum treatment, taking of temperatures, and observing the condition of the animal during the test period. Necessarily the official regulations are of technical character, and it has come to the attention of the Department of Agriculture that in some cases the rules have been misinterpreted, so as to make them appear responsible for fluctuations in the stock-hog market.

For the information of the public, the Bureau of Animal Industry outlines briefly the method of inspection:

All public stockyards are considered to be infected and swine are, therefore, exposed to the contagion from the time of their entry into the yards; consequently, it is important that they be immunized promptly after arrival at such yards to protect them against contracting the disease.

For that reason the department opposes the immunization of swine that have been so exposed for more than five days. Hogs, though they may not show physical symptoms of cholera, may in some instances be affected with the disease to such an extent that immunization will not protect them.

Value of Five-Day Limit

If the five-day limit were not applied many animals in this condition might be shipped to the feed lots, which would result in serious financial loss to the buyer through a high percentage of mortality, besides creating a center of infection in that community.

It is not permissible to immunize swine for immediate shipment interstate if they show symptoms of contagious or infectious disease.

If a considerable percentage of the animals in a lot is found to have high temperatures, the possible presence of such disease is indicated, and the animals are not immunized or permitted to be shipped interstate. It is possible to have hogs with high temperatures as a result of conditions surrounding the shipment to market, in which case they will return to normal within a short time.

In these instances the owner is permitted to present the animals for reexamination as frequently as desired within the five-day limit, and if, upon such reexamination, they are found to be normal their immunization is supervised, and after they are disinfected a certificate covering their interstate movement is issued. This provision is for the purpose of affording the owner every opportunity consistent with safety to the swine industry to market his shipment in the most profitable way.

Must Protect Purchasers

The practice of shipping swine from one public stockyard to another before immunization is liable to reduce the protection afforded very considerably, because of the uncertainty as to the length of time the animals have been exposed. To permit the interstate movement of such lots would afford insufficient protection to the purchasers who are not familiar with these various phases.

Department inspectors, therefore, have instructions not to supervise the immunization of such lots unless it can be shown conclusively that not more than five days have elapsed since the animals were first unloaded in a public stockyard.

The widespread interest in the feeder and stocker trade is shown by the fact that the great majority of feeder hogs were sold in small lots. The figures for the Kansas City stockyards, where more than 100,000 hogs were immunized under Federal supervision during the last half of 1918, show that those animals were sold in about 600 different consignments, an average approximately of about 166 head per lot.

Briefly, it will be observed that the entire plan is to protect the swine industry against the introduction of sick hogs or those of doubtful health into well herds. Under the Federal regulations no hogs are held a longer time than is necessary to give them a clean bill of health.

SELL FUEL WOOD BY WEIGHT

Foresters Say Heating Value Does Not Depend Upon Bulk

Wood for fuel should be sold by weight instead of by cord measure, for the heating value depends not upon the bulk of the wood but upon its weight, say foresters of the United States Department of Agriculture in Bulletin 753, recently published. A pound of dry wood of one species has about as much heating value as a pound of any other species, but two cords may vary 100 per cent in their value for heating.

It is the custom to sell hardwoods and softwoods at slightly different prices because of differences in heating values. This is only a superficial classification, however, as two species of hardwoods may have heating values widely different. Where hardwoods and softwoods are mixed together without regard to the proportion of each, the values may be so different that one man may, for the same money, buy twice as much heating value as another. The shape and size of the sticks may also cause great variation in the actual amount of wood substance, and therefore of fuel. If weight were the measure, the species, shape, and size of sticks would make little difference, provided the wood were thoroughly seasoned. It would be necessary, however, to fix certain standards as to time of seasoning of wood, the specialists say.

The bulletin points out that there is special opportunity for greater use of wood for fuel in New England, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Iowa, Missouri, and the Lake States, where there is a rural population of about 20,000,000, which is estimated to use annually 18,000,000 tons of coal. A considerable proportion of these fuel users will find wood available close enough to their own neighborhood to make long freight hauls unnecessary. By turning to wood they will not only conserve the fuel supply and relieve transportation, but are likely to contribute to the prosperity of their own community. For one thing the opportunity to sell wood fuel would tend to encourage the

improvement of farm woodlands by proper thinnings.

An increased market for wood fuel should open up good opportunities for operators of thrasher and silo-cutting outfits or others who have gasoline or kerosene engines to do custom sawing during the winter, according to the bulletin.

The bulletin contains many suggestions as to how to develop and handle the woodlot to best advantage. How to produce wood, how to sell it, and how to use it are all covered in a practical way.

STOCKYARDS FIGURES SHOW GAIN IN LIVE-STOCK BUSINESS

How the live-stock business at stockyards has jumped in recent years is shown by comparisons recently made by the Bureau of Crop Estimates of the United States Department of Agriculture.

Since 1900, the smallest number of cattle received at Chicago, Kansas City, Omaha, St. Louis, Sioux City, St. Joseph, and St. Paul in any year was about 7,200,000 in 1914. The number advanced strongly to more than 12,900,000 in 1918, a gain of 80 per cent in four years.

The receipts of calves—not included in "cattle"—at the stockyards of Chicago, Kansas City, St. Joseph, St. Paul, and Sioux City increased from 664,000 in 1914 to 1,362,000 in 1918, a gain of 105 per cent.

Swine, also, went to the stockyards of the cities first mentioned above in greater numbers since 1914. From 18,300,000 in that year, the number grew to 25,500,000 in 1918, a gain of 39 per cent. The highest number reached in any former year was 22,900,000 in 1908, and the smallest number since 1900 was 14,900,000 in 1910.

The movement of sheep to the stockyards grew from 7,100,000 in 1900 to 14,000,000 in 1913, after which year the number declined to 10,000,000 in 1917, but it jumped to 12,100,000 in 1918, which was close to the average of the last nine years.

A 1,000-acre farm in the heart of a big city would be considered an extravagance and its operation poor business, but there were thousands of acres of gardens right in large cities of the United States last year, "and they proved the best-paying propositions ever thought of," said a garden specialist of the United States Department of Agriculture recently.

A sufficient range in variety of fruits can be produced in home orchards throughout a large portion of the country to provide a supply in the fresh state for the table during a large part of the year and for canning and otherwise conserving for use as desired.

WEST'S WATER USERS DEPEND ON NATIONAL FOREST SUPPLY

Crops on Irrigated Lands Triple Value of All Precious Metals

Many Phases of Region's Life Decided by Streams That Originate in Government Preserves; Mountains Are Reservoirs

The crops produced on irrigated lands in the West are worth nearly three times as much as all the gold, silver, and other precious metals from the same region, according to "What the National Forests Mean to the Water User," a publication just issued by the United States Department of Agriculture.

Most of the water for irrigating these lands comes from streams that originate in the National Forests. In addition municipal water supplies for many western cities, including Denver, San Francisco, and Portland, and water-power furnishing electric light, heat, and motive power to vast regions are derived principally from the National Forests. The care and protection of the National Forest watersheds are therefore vital to the prosperity and development of the West.

SOME WORK IN FORESTS.

The western mountains contain more than 72 per cent of the potential water power of the United States.

Approximately 7,500,000 sheep use the national forest range each year.

Some 732 western towns and cities, with an aggregate population of 2,265,000, depend on the national forests for their domestic water supply.

About 10,000,000 forest-tree seedlings and transplants are grown by the Forest Service each year for use in the reforestation of denuded lands in the national forest.

Essential to Well-Being

Sometimes the water from one National Forest exerts a deciding influence on a whole region—not in one department only of the region's development but in many. A typical example is the Pike National Forest. It supplies water for irrigating lands which produce an annual crop worth over $10,000,000. It contains the great 26,000,000,000-gallon capacity Denver reservoir and supplies that city and Colorado Springs with water for domestic and municipal purposes. It offers great possibilities for the development of hydroelectric power. It supplies water for milling ores. And it attracts thousands of visitors every year, who add greatly to the prosperity of the region.

The reason why the water supplied by the National Forests is so important to the West is that the amount of moisture in the form of snow and rain that falls on the valleys and lowlands, except a narrow strip along the Pacific coast, is hardly enough to support a desert vegetation and what does fall evaporates very rapidly. On the mountains the fall of snow and rain is much heavier.

Mountains Are Reservoirs

It is necessary, therefore, that the mountain areas act as a reservoir, storing up and distributing as needed the water necessary for the carrying on of life in the valleys and lowlands. By protection of the watersheds and conservation of the supplies of water precipitated on the mountains the National Forests make it possible for the farmer, the ranchman, and the business man to maintain their homes and carry on their business.

"Every user of water which originates on the National Forest—and this includes by far the greater number of water users throughout the West—must look to the forests for safeguarding his supply."

DIRECT MARKETING LIMITED

While it may be attractive to a city dweller to believe that he can have a vegetable garden grown for him 100 miles or 150 miles away, place his orders for the cost of a stamp, and have the produce delivered at his door, it should be remembered that not all farm products lend themselves to direct marketing by parcel post. Usually it is impracticable to market such heavy products as potatoes by parcel post, whereas eggs, butter, sausage, poultry, many vegetables, and nut meats may frequently be shipped with profit and at a saving to the purchaser. In general, the greater the value a pound the more favorable is the chance for direct marketing.

PARTIAL SHADE FOR BERRIES

Currants and gooseberries commonly do better, especially in the southern limits of their range, if grown where there is partial shade. This sometimes can be provided by planting them between fruit trees. Raspberries and blackberries are sometimes planted between trees, but the practice is not advisable unless the soil is naturally moist and fertile.

If you think the home garden doesn't pay, just try going to market with less than $5 in your pocket.

War Revives Drying of Vegetables; Essentials for Profitable Industry

The German submarine may be said to have revived the dehydrated vegetable industry in America, and to have started it upon a career of wide usefulness and importance.

When millions of men were to be fed by transporting practically everything they ate across the Atlantic Ocean, and when ships were anything but plentiful because of submarine depredations, the United States and the allies realized that anything that would reduce bulk was worthy of consideration. And dehydration does reduce both the bulk and weight of vegetables by from four-fifths to nine-tenths.

But the drying of vegetables had never been generally practiced on a very large scale and, for a long while, even small-scale drying had been practically abandoned. Proper methods in preparing the vegetabes were not known, and the drying process itself was something of a mystery. Suitable manufacturing plants and equipment were hardly to be found at all. The soldiers had never eaten dried vegetables, and army cooks knew next to nothing about how to prepare them.

There were difficulties—but they were overcome. Research by experts of the United States Department of Agriculture and the Sanitary Corps of the Army resulted in standardizing methods of preparation, drying, and packing. It was ascertained that many vegetables could be dried in such way that they would retain their characteristic flavor and quality, and that the process rendered them nonperishable. Millions of pounds of dehydrated vegetables were sent to the armies overseas.

Saves the Surplus

While dehydration was being studied as a means of saving ship tonnage, it gained recognition as a means of conserving the surplus of perishable vegetable crops, permitting increased production and at the same time stabilizing the market, extending the use of vegetables throughout the year, making shipment possible to any part of the country or to foreign countries at no increase in cost to the consumer.

The dehydration of vegetables is a promising industry, but the United States Department of Agriculture warns that it is not to be undertaken without careful consideration of every factor that may contribute to success or failure. Some of the essentials are: Sound, fresh materials rigidly inspected and graded, scrupulous care in every detail of paring, trimming, steaming, and other preparatory processes, and intelligent oversight of the drying process itself.

Those details attended to, it is possible to use successfully any one of several types of drying apparatus, though it must be one in which it is easy to obtain steady, uniform air currents over every part of the drying material, while complete control of the temperatures is retained. The drier must be of the unit type, each unit capable of operation independently of the others. This is necessary in order that the plant may be operated at part capacity, as will often be necessary, without the expense of keeping the entire plant going. The drier must be comparatively inexpensive, as dehydrated vegetables must win their way into popular favor not only by excellent quality but by low cost.

Tunnel Dryer Believed Best

In any given district, a dehydration plant will serve as a safety valve for the fresh vegetable market. Its output will increase or decrease with the rise or fall of prices of fresh materials. Occasionally, because of crop shortage or high prices, it may be necessary to suspend entirely for a season. Such possibilities render large investment in plant ill-advised. The Department of Agriculture believes that the exacting conditions are more nearly met by the tunnel type of drier than by any other thus far investigated.

Any district which is engaged in general vegetable growing and which regularly produces more of each of its leading crops than the accessible markets can absorb at good prices should look into the possibilities of drying its surplus as a means of extending the market and stabilizing the industry.

Thus far it can not be said that any stable market for dehydrated vegetables has been established in this country. Wholesale and retail dealers are waiting to learn more about them, but a few large firms are handling them. A good deal of "selling work" is still necessary, and any group of growers should investigate the possibilities for an assured market before establishing a plant.

LESSONS OF ORCHARD APPLIED TO FARM WOODLAND.

Before planting your orchard you decide what are the most profitable varieties and plant only those. You don't want too great a variety.

In handling the woodland it is best to keep only a few of the most profitable varieties of forest trees and cut out the others.

You plant your fruit trees far apart because you want low-spreading tops, easy to pick from.

In planting forest trees you don't want to pick the fruit, so you plant the trees near together and obtain tall, straight trees with small tops.

You prune your fruit trees in order to get less wood and better fruit.

Don't waste time pruning forest trees, because you are not growing forest fruit but wood. Cut out the poorer trees for wood and leave the best ones for lumber.

MOTOR ROUTES SOLVE FARM "SHORT-HAUL" DIFFICULTY

Hauling farm produce to market in motor trucks represents one means of the successful solution of the "short haul," one of the most difficult problems which confronts the transportation expert, reports the Bureau of Markets of the United States Department of Agriculture in a recent publication, "Motor Transportation for Rural Districts."

Failure of railroads to keep pace with the expansion of the short-haul business, the development of the producing areas adjoining the larger cities in proportion to the production demands asked of them, and the upbuilding of the motor-truck manufacturing activities, as well as the recent war emergency crisis, have popularized this method of moving farm produce to market.

The Bureau of Markets conducted an extensive survey of 60 rural motor routes to ascertain the defective practices and as far as possible to suggest improvements which would stabilize the industry. The bureau found that rural freight is hauled by the farmer who owns a truck and handles his personal marketing as well as that of his neighbor by motor, by the local truck operators who haul farm produce as a business, by the local automobile or truck agencies that operate transportation trucks as a side line, by the city transfer company which also engages in rural hauling, and by the large corporation which operates a fleet of trucks over a wide range of territory. Naturally with such a diversity in the hauling agencies, there is a similarly wide range in their methods of doing business.

The bulletin will aid the prospective operator. It will be sent free on request.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Use Alsike Instead of Red Clover.

Because of the shortage of red-clover seed farmers are advised by the United States Department of Agriculture to substitute alsike for red clover in their spring seeding operations. On the basis of present market prices 2 acres can be seeded with alsike for what it would cost to seed 1 acre to red clover. Farmers who purchase clover seed should require the seedsmen to sell these seed under label, presenting the germination, purity, date of germination test, and, in some instances, the point of origin of the seed. A special agreement between the Secretary of Agriculture and the domestic seed trade provides that seedsmen distribute their seeds under label. Farmers should see that merchants live up to this agreement. The shortage of red clover seed, the department explains, results from more clover hay being made last year, decreased imports of seed, the unfavorable season last year, and the breaking of clover sods for wheat.

Supports Family by Home Canning.

The sale of her canned fruits and vegetables has enabled a woman in Albemarle County, Va., to feed and clothe her eight children the last two years. When war was declared her eldest son enlisted in the Navy. In a few months the second son went into the Army, and the mother was left to wrestle with the problem of providing three meals a day for the eight younger brothers and sisters. About this time the home-demonstration agent of the United States Department of Agriculture and the State Agricultural College was teaching the women in that locality how to can. With a garden which could raise plenty of fruit and vegetables, and with wild fruit to be had for the picking, the mother of 10 decided therein lay the solution of her problem. Results have proved that her judgment was right. Thousands of cans of fruit and vegetables have been put up and sold from this country home. One lot the home-demonstration agent helped her sell brought $125.

Progress in Control of Tuberculosis.

A summary of tuberculosis-eradication work during January, 1919, just issued by the United States Department of Agriculture, shows that 982 tuberculosis cattle were slaughtered in that month. The destruction of this number of diseased animals obviously reduces the menace of tuberculosis to the cattle industry of the United States. Altogether 1,321 lots of cattle, aggregating 27,461 head, were tested in January. Those reacting to the tuberculin test numbered 1,280, which averages less than one animal for each lot tested and is less than 5 per cent of the total number undergoing the test. The work of eradicating tuberculosis from domestic live stock is under the supervision of the Bureau of Animal Industry in cooperation with the various States.

"Thrift Kitchens" Continue Work.

Many thrift kitchens organized during war times to help war conditions have proved so valuable that their continued existence now seems assured. Thrift in the home is taught under the direction of the home demonstration agents of the Department of Agriculture and the State colleges in the "salvage shops," as the kitchens are sometimes called. These kitchens were originally established to teach people thrift in using their own material. It soon developed, however, that many who wished to be thrifty had little to be thrifty with. This led to the kitchens being used as clearing houses for material still possessing much wear discarded in the homes of the well to do and much needed where resources are more limited. In the Bourbon County (Kans.) thrift kitchen this work has been especially successful. The kitchen is open from 9 until 5, and the home demonstration agent or the visiting nurse plans to be there during those hours. To prevent any possibility of contagious diseases being disseminated, garments are thoroughly fumigated or sterilized before being given out or remade. If soiled garments are received, they are laundered by needy women, who, by giving their work, feel they are thus paying for the assistance they may have received. When it is practicable those who have been helped are urged to come to the kitchen to sew, mend, or do other work in return for gifts of clothing. By this method pauperism is discouraged and the women have an opportunity to profit by the instruction given in garment making and remodeling under experts in charge of the work. Many volunteer workers help in this work, and the plan followed has been for the volunteers to work every afternoon except Saturday and have the other workers come forenoons and Saturdays. In one month in the Fort Scott (Kans.) kitchen 619 garments were given out which did not need remodeling and 52 others, either new or entirely made over from old garments.

Connecticut Has "$1,000 Poultry Club."

What is a $1,000 Poultry Club? Ten girls and boys in Litchfield County, Conn., have formed one, and it has for its aim the clearing of $1,000 in one year on the poultry owned by the club members. The 10 youths are members of boys' and girls' clubs, supervised by the United States Department of Agriculture and the State agricultural college. They own altogether 350 birds, and they are determined to realize their expectations. The members decided an extension school would be of assistance in their work and, undeterred by the fact that a "junior extension school" had never been conducted in Connecticut before, asked for one from the State college and got it. The attendance throughout the course was excellent and the interest keen. Now the $1,000 Club is busy putting into practice some of the hints on making money with hens given them by the poultry experts at the school.

Pig Clubs Lay Good Foundation.

Distribution of pure-bred pigs among the club members in Utah has laid a foundation for much improvement in the quality of the pigs raised throughout the State, reports the Utah State club leader. Early last spring it was thought that four or five carloads of pure-bred sows would be sufficient to supply the club members, and arrangements were made through the Ogden and Salt Lake City stockyards for this number—bankers to furnish loans to club members. It was soon found that more animals could be handled to advantage, and six carloads were purchased. A month later the number of cars ordered had increased to 10, and none of the shipments contained anything but pure-bred sows bred to farrow in April. The demand for pigs was so great that following this distribution eight hundred 8-weeks-old pigs were distributed by July 1. Many of the pure-bred pigs secured were purchased from a father and son in Nebraska who were in the hog business as a result

of a prize pig won by the boy in his corn-club work four years previous.

Winter Gardens Popular in Georgia.

One thousand two hundred and fifty-six girls in Georgia, under the instruction of the home-demonstration agent, planted winter and perennial gardens in 1918. Figs, asparagus, new varieties of muscadine grapes, and other fruits and vegetables which increase the variety of food products for the home table or the income of the club members are popular crops in these perennial gardens. The dasheen, chayote, and New Zealand spinach aroused much interest in the localities where they were tried. Seven thousand five hundred and fifty-eight girls in the State conducted demonstrations with one-tenth acre gardens; 3,386 of the members who turned in satisfactory reports grew 2,342,038 pounds of vegetables. The total value of these garden products was $272,767.93. Last year 100,000 women and girls in Georgia were directly influenced by the home-demonstration agents. The entire strength of the work was placed behind the wartime program of food conservation and production, and 3,101,103 containers of fruit and vegetables valued at $857,510.58 were conserved by these club members. In addition 68,592 gallons of brined vegetables valued at $8,340.50, and 326,059 pounds of dried fruits and vegetables valued at $127,063.38 were saved from waste, to add variety to the Georgia meals this winter.

Girl Makes $98 from Nine Hatches.

A little girl in Orange County, Va., borrowed money from her father to buy nine settings of eggs, so she might belong to a poultry club organized by the United States Department of Agriculture and the State Agricultural College. One setting would have entitled her to a membership, but she is no believer in halfway measures. On this venture her first year's work netted a profit of $98, and she has three roosters left.

Studies in Stock Raising to Continue.

Investigational work in stock raising on the southern cut-over lands is to be continued. The Secretary of Agriculture has just approved a cooperative project with the Mississippi Experiment Station for experimental work in live-stock production to be carried on at the branch experiment station at McNiell, Miss., in the southern part of the State. This is not a new project but is a continuation of work which has been under way for the past two years on cut-over lands in southern Mississippi. The new arrangement gives the State Experiment Station and the United States Department of Agriculture an opportunity to work out cooperatively some of the problems that confront stock raisers over a large section of the southern cut-over land area.

Horse Still a Going Concern.

Horses are hardly maintaining their number on farms in this country, in consequence of the autotruck, the automobile, and the needs of the war, and yet there are nearly as many in the country now as a year ago, according to the Bureau of Crop Estimates of the United States Department of Agriculture. Furthermore, there are now one-third of a million more than at the beginning of the war. It was expected that the war would stampede the horse market in this country and would send prices high enough to rob the farms of a large number of much-needed work animals, but there was no such shock as was expected. From 1910 to 1915 horses on farms increased a little each year, usually over 1 per cent, and since 1915 the increase of four years has apparently been over 300,000. The present total, according to the estimate, is 21,534,000 horses. The exports of horses during the war to December 31, 1918, have been slightly more than 1,000,000; at the prewar rate the normal exports would have been about 120,000. As far as covered by domestic exports, the war made an extra demand on farmers for almost 900,000 horses. To this must be added the extra demand of the United States Government. By January 11, 1919, the War Department had shipped overseas nearly 39,000 horses, and on November 2, 1918, that department had in this country nearly 165,000 horses. The apparent figures of extra demand on the farmers of the United States by this country and the allies for horses on account of the war make a total of about 1,100,000 horses in exports and in the service of the War Department. The actual number is greater by the normal exports, and hence about 1,200,000 horses are indicated as the horse contribution of the farms to the war, not including private purchases and the United States Government outside of the War Department.

Crops Saved in Rodent Fight.

Last year 100,861 pounds of poison bait were used by 1,703 cooperative farmers in Utah to stop the enormous losses that have been sustained annually from rodents in that State. This poison was applied on 86,104 acres of infested land, and the farmers reported 892,179 rodents destroyed with an estimated saving in crops of $702,368. Estimates of the saving accomplished were made by specialists of the Bureau of Biological Survey, United States Department of Agriculture, who aided State and local workers in the enterprise. Farm bureaus already have ordered quantities of strychnine to carry on similar work in the immediate future and have prepared to mix the poison bait at central places and supply it to farmers who agree to use it according to directions and make reports of results. The bureaus say that if the work could be properly financed they could use five times the amount of poison they now have.

Eat More Frozen Fish.

Eat more fish—the kinds that are frozen solid and covered with an ice jacket as soon as they are drawn from the deep, cool sea—is the advice of specialists of the United States Department of Agriculture. There is an unusually large supply of this kind of fish on hand, probably twice as much as the country has ever had before, and the quality, the specialists say, is as good as the so-called fresh fish that go to the market packed in ice. And the price is more reasonable because the fish were caught in the season of overproduction. The holdings include some excellent kinds noted for their quality, such as weakfish, mackerel, whiting, and herring. People in large cities where hard-frozen fish can be had should give them a trial, and people living in the rural districts of inland States need not be deprived of this form of seafood, for during the cold season frozen fish can be shipped by express or sent by parcel post long distances, Bureau of Chemistry investigators have learned.

Canner Made to Pay for Itself.

Many canning clubs organized by the Department of Agriculture and the State colleges use hot-water-bath canners in putting up fruit, vegetables, soup, and meats. Some clubs hesitate to buy because of the expense. The Sheffield club, of Bureau County, Ill., last summer found a way around the difficulty by buying a canner and then renting it part of the time to housewives in the neighborhood at a nominal charge. The balance in the club treasury was not lowered, and the club has on hand a canner for work this summer. The Sheffield club won the right by contest in its own locality to compete at the State fair in Springfield. Taking the first prize there, the members were sent as State champions to the interstate fair at Sioux City, Iowa, to compete with other State teams.

Ways of Producing More Fats and Oils To Meet Scarcity Suggested In Bulletin

Only by the strictest economy aud by substitutions ordinarily regarded as impossible has the world's supply of fats and oils been made to meet the requirements of the last few years, declares the United States Department of Agriculture in a publication just released. The allied nations barely were able to secure enough to meet their military and civil needs, while the greatest suffering in the central empires appears to have resulted from a dire shortage of fats and oils.

This was true during the war, and continues true in the reconstruction period notwithstanding the fact that the oil-producing possibilities, of America particularly, have never been utilized to anything like their full extent. To show the possibilities for oil production in greater quantities from recognized materials as well as from new materials and to demonstrate the possibilities of fuller utilization and conservation, the United States Department of Agriculture has issued, as Department Bulletin No. 769, a publication on "The Production and Conservation of Fats and Oils in the United States." The work was done in collaboration by Herbert S. Bailey, chemist in charge of the soil, fat, and wax laboratory of the Department of Agriculture, and B. E. Reuter, chief of the fats and oils divisiou of the United States Food Administration.

Butcher and Farmer Should Trim Closer

It is shown that conservation in food materials, especially in fats and oils, is as essential now as it was during the war, and to this end the small butcher and farmer are urged to trim more closely the animals they slaughter in order to obtain all the fat possible for rendering as lard or tallow. Many possibilities are shown for increasing the yield of a number of vegetable oils, notably cottonseed oil, and for a closer utilization of animal fats in packing houses. Every kind of oil aud fat produced in the United States, both vegetable and animal, is discussed, and iu many cases means are pointed out for increasiug the supply either by producing larger quantities of the raw material or by better methods of recovering. The bulletin goes rather exhaustively into the subject. It shows the importance of fats and oils, the numerous uses to which they are applied, the ratio between production and importation, and how to safeguard the supply. One of the more important means of safeguarding is declared to be the substitution of the more abundant oils for those which are scarce, and the conservation of those oils for purposes to which they are peculiarly adapted. Oils like castor oil as a lubricant can not easily be replaced.

Peanut Oil Gains Recognition

Cotton-seed oil, the productiou of which is several times larger than the production of all other vegetable oils in the United States, receives rather lengthy treatment with suggestious for increasing the supply, the use of only good seeds, better methods of storing at the gins, crude mills and refineries, and the use of more efficient extraction methods.

The importance of peanut oil is discussed. This was almost an unknown product in the United States prior to 1914, but in 1917 it ranked third in the vegetable oils made from home-grown products, being exceeded only by cottonseed oil and linseed oil. Peanut oil, it is pointed out, serves practically the same food purposes as does cottonseed oil, and has the advautage that it can be obtained by cold pressing, like olive oil, and becomes thereby a superior table oil. It has the advantage over cottonseed oil also in that the cake, after the oil is pressed out, forms a palatable human food very high in protein.

Other kinds of oil discussed with suggestions for increasing the supply are: Castor. coconut, coquito, corn, grape seed, linseed, mustard seed, olive, palm kernel, rapeseed, sesame, shea nut, soy bean, sunflower seed, bone grease, cod and cod-liver oil, garbage grease, herring oil, lard, menhaden oil, neat's-foot oil, neutral lard, oleo stock, packers' and renderers' greases, sperm oil, tallow, whale oil, wool grease, and recovered grease.

Starvation of Pecan Trees Makes Them Prey to Disease

Rosette, the most serious disease of pecan trees in the Southern States, is a result of a soil deficient in humus, fertility, aud moisture supply, says Bulletin 756, recently published by the United States Department of Agriculture, which is a report of recently conducted experiments, covering a number of years, to determine the cause of the trouble. To control the disease in established orchards, as well as to prevent it among uewly set trees, the bulletin recommends that the soil be built up by the addition of large quantities of humus-forming materials.

Previous to conducting the experiments department specialists made a study of the orchards in the Southern States, and fouud that on the river flood-plain soils of southern Louisiana the disease is practically unknown, while in Georgia and Florida a large portion of the diseased trees, probably 90 per cent or more, were found on the hilltops and slopes. In the same localities, but in low lands, where humus and fertility had accumulated from year to year, the trees were uniformly vigorous, thrifty, and free from the disease.

In the experiment which followed these investigations a pecan orchard, containing 56 badly rosetted, 11 slightly rosetted, and 21 healthy trees, was fertilized with stable manure, cottonseed meal, and a combination of the two. After two years the number of badly rosetted trees was reduced to 7, aud 26 were in the slightly rosetted class, partially recovered. The number of healthy trees had been increased to 53. In the check plot which was not fertilized the diseases increased. It was found that commercial fertilizer used alone, as well as applications of lime, were not effective in controlling the disease.

In setting new orchards the bulletin recommends that only good land be used. Deep saud, clays underlaid with sand, and eroded hillsides should be avoided. After the orchard is planted the cultural practices should be such as to increase the depth, humus content, fertility, and moisture-holding capacity of the surface soil as rapidly as possible, and to conserve moisture during dry periods. Intercropping with shallow rooted plants and legumes is a good practice, says the bulletin.

The ideal home orchard should contain several kinds of fruit, represented in many cases by a considerable number of varieties ripening one after another over a long period. Large yields, good shipping quality, and attractiveness in appearance all may be made secondary to high dessert quality or special excellence for cooking purposes.

In selecting varieties of fruit for home planting, the planter should avail himself of the suggestions of experienced fruit growers in his community, the county agent, the experiment station or extension division of the college of agriculture of his State, or the United States Department of Agriculture.

Drainage Essential for Good Roads; Conditions That Builders Must Meet

An essential feature of an improved road is adequate drainage, according to the specialists of the Bureau of Public Roads, United States Department of Agriculture. Thorough drainage is so necessary that it is practically impossible to maintain satisfactory road unless it be given proper attention. Another prime requirement wherever a hard surface road is to be constructed is a firm and unyielding foundation. As the quality of the soil has an important influence on the proper method of drainage and the type of foundation to be employed, much care and study must be devoted to the nature, type, and character of the soils in the section through which it is proposed to build a road.

The most important primary soils are classified as gravel, sand, and clay, but often many of the secondary or mixed soils, because of their more general occurrence in connection with road-building operations, are equally important. Such types as loam, marl, gumbo, and hardpan are representative of this order.

In the design of a road the drainage structures are planned to take care of water under three general conditions—rain that falls on a road surface or grade; rain that falls on contiguous land and flows in accumulated volume toward the road; and ground water from any immediate source. To meet these conditions use is found for special structures, including longitudinal side ditches, usually parallel, or approximately parallel to the center line; intercepting ditches to accommodate water whose approach so close to the roadway as the side ditches is likely to cause injury; lateral ditches or culverts to conduct accumulated water away from or under the road; and subdrains. In order to plan intelligently a system of drainage for any particular road, it is necessary to consider not only the local character of the soil composing the roadbed, but also the topography of the adjacent land, the amount and rate of rainfall and the availability of material suitable for use in constructing drains.

Provide Surface-Drainage Systems

Surface drainage systems for roads consist of side ditches along the road, paved gutters (which are a development of side ditches and replace them), open intercepting ditches constructed to prevent water from reaching the road, and lateral or relief ditches to carry off the water which collects in the side ditches or in the intercepting ditches. Culverts and inclosed drains, which are constructed for the purpose of removing storm water from the side ditches or gutters, are essentially a part of the surface drainage system, and are not to be confused with subdrains which serve an entirely different purpose.

Where the grade of a road is so steep that the ordinary earth side ditches can not be maintained satisfactorily at a reasonable cost, or where earth side ditches would be insanitary or appear unsightly, it is customary to provide paved gutters for removing the surplus water. The point at which it is economical to change from earth side ditches to paved gutters on account of the steepness of the grade depends on the character of the soil and the amount of water to be carried.

Gutters may be constructed of Portland cement, concrete, brick, cobblestones, angular fragments of stone, or other material. In some cases they are formed simply by constructing a curb along the edge of the road surface, as is done sometimes in city pavement construction. This method can be employed only where the road surface is made of material capable of withstanding the eroding action of water and where it is not important that the earth shoulders be kept open to vehicle traffic. Gutters are made from 2 feet to 6 feet wide and from 3 inches to 10 inches deep, depending to a great degree on the type of design, and the size is governed by the same consideration as governs the size of earth side ditches; that is, they should have a cross section sufficient to drain the road without danger of overflow, and in order to determine this cross section it is necessary to consider the area to be drained, the maximum rate of rainfall and runoff, and the character and slope of the gutter.

Drop inlets and catch basins are used to conduct water from side ditches or gutters into underground drains or culverts. On country roads they are used most frequently on sidehill locations, where the water collecting in the upper side ditch or gutter can be removed from the road at intervals by means of a culvert across to the lower side. Drop inlets usually are sufficient, and catch basins seldom are used in country road work, except where it is especially desirable to prevent the silt and other foreign material carried by the water from getting into the underground drainage structure.

Open Ditches Used in South

Open ditches have been used frequently in some of the Southern States for subdraining roads through low, flat sections. Ordinarily only one ditch is used, and it is located a few feet outside of and parallel to the road. This ditch usually is made about 2 feet wide and 3 to 4 feet deep, with vertical banks. The material excavated from the ditch is used to build up the roadbed, and the surplus water from the side ditches is turned into the deep ditch at convenient intervals. The use of such ditches should be decided upon with care. There are ditches in the South, within the coastal plain, where sand clays and indurated clays occur a few inches underground, that have stood with vertical sides since the middle of the last century. They have been cleaned repeatedly, and no doubt have become somewhat enlarged, but considering the cost of maintenance and the service given they have been entirely satisfactory. In other soils of a gravelly nature, however, the sides of such ditches would not stand, and the cost of keeping them clean would be excessive. In certain localities the open ditch soon will become obstructed by the banks breaking away and by the growth of vegetation, and is very seldom economical in the long run.

Ditches filled with broken stone or gravel sometimes are used as a substitute for tile drains. These have been used in all sections of the country, and when properly constructed usually have proved satisfactory for a considerable period of time. When such ditches are used it is common practice to place one on each side of the road immediately under the ditches. They are excavated to a depth of 2 to 3 feet with vertical sides and usually are made about 18 inches at the top or just wide enough for a man to work in them conveniently. To be effective they must have a uniform grade and be carried to a suitable outlet.

Tile drains in general are much superior to either open ditches or ditches filled with stone for subdraining roads, and though generally more expensive than either open or stone drains, they usually can be constructed at comparatively small cost. As a rule the tile need never be over 6 inches in diameter, while for ordinary conditions a diameter of 4 inches is sufficient.

Firm Foundation Essential

The purposes of a foundation are to aid in distributing the pressure due to wheel loads concentrated on the road surface,

so that the intensity of pressure on the subgrade will not exceed a safe unit-bearing power, and also to prevent, if possible, the crust of the road from being disturbed by the upward pressure of the subgrade due to the action of frost, ground water, or other disturbing influence. In the case of a pavement consisting of comparatively small blocks, such as vitrified brick, bonded to each other very slightly or not at all, an entire wheel load might be concentrated on only a few square inches of foundation, in which case it would be necessary for the foundation to take care of practically the entire distribution of the load. On the other hand, a monolithic pavement, or a pavement in which the individual units are well bonded together, might distribute the wheel loads to obviate all necessity of further distribution by the foundation, and if adequate drainage were provided, and there were no danger of heaving of subgrades, the foundation might be omitted entirely.

The heaviest vehicle that ordinarily has passed over a public highway heretofore is the 15-ton traction engine. Such engines are so designed that the rear axle carries about two-thirds of the total weight, which arrangement gives a concentrated pressure on the road surface of about 5 tons under each rear wheel. The use of much heavier equipment is in sight, however, and unless some regulations be passed to prohibit it, the occurrence of 10-ton or even heavier motor trucks may become common on highways adjacent to large cities or between large centers that are only a few miles apart.

In assuming the maximum wheel load for any particular road a reasonable allowance should be made for future increase. Since motor trucks have come into use there has been a constant tendency to increase both their rates of speed and the loads they carry, and it is probable that this tendency will continue. Furthermore, many roads not now subjected to motor-truck traffic will attract such traffic after they are improved, and this possibility always should be considered. Increase in the volume of traffic also may be an important factor, because a foundation ample to support an occasional load might fail soon if the same load were often repeated.

The foregoing information, as well as complete details about drainage methods and foundations for country roads, is contained in United States Department of Agriculture Bulletin No. 724, recently issued.

Why not shade your back porch with a screen of lima beans? The crop may surprise you.

Millions Made Available for Building Roads and Trails in National Forests

The development of the National Forest road systems is given great impetus by the terms of the Post Office appropriation act which the President has just signed. Besides increasing by $200,000,000 the total fund available under the Federal-aid roads act, the new law makes available for expenditures by the Secretary of Agriculture $9,000,000 for roads and trails within or partly within the Forests.

The law also authorizes the Secretary of War to transfer to the Secretary of Agriculture material, equipment, and supplies suitable for highway improvement and not needed by the War Department. While most of this will be distributed among the highway commissions of the States for use on Federal-aid roads projects, not to exceed 10 per cent may be reserved by the Secretary of Agriculture for use in building National Forest roads or other roads constructed under his direct supervision.

The $9,000,000 fund may be used for maintenance as well as survey and construction. The new legislation, like the Federal-aid roads act, makes the building of roads and trails necessary for the use and development of National Forest resources or desirable for the proper administration, protection, and improvement of any Forest contingent upon cooperative local contribution; but in addition to this it contains a new feature of much importance.

May Build Independently

This new feature permits the Secretary of Agriculture without the cooperation of local officials to build and maintain "any road or trail within a National Forest which he finds necessary for the proper administration, protection, and improvement of such Forest, or which in his opinion is of national importance." In the view of forestry officials this law is the most important step ever taken for rapid development of a National Forest roads system, and will be of inestimable benefit to the local public.

"The measure gives us much broader scope for a fully developed program than we have had before," says Henry S. Graves, Chief of the Forest Service, in commenting on the new law. "Under the Federal-aid roads act we had available, for roads within or partly within the Forests, $1,000,000 a year, available until expended. Owing to the war, which practically halted the work, we have an accumulated balance of $2,500,000 unexpended and another $1,000,000 which will become available July 1.

Ten Millions This Year

"Of the new appropriation, $3,000,000 is immediately available, and $3,000,000 will become available July 1. There will also be available $400,000 or more from the 10 per cent of National Forest receipts. Altogether, therefore, we have in sight for the coming year about $10,000,000, if we can use it advantageously. Whatever we can't use advantageously so soon will be added to the $4,000,000 of new money that becomes available the following year.

"We already have our plans for approved road projects sufficiently shaped up so that a prompt start will be possible as soon as the weather permits. In some cases, however, these plans must necessarily be suspended on account of pending proposals for the creation of National Parks affecting National Forest lands. It would be obviously improper to expend the funds intended and voted by Congress for the development and protection of the National Forests on areas which may soon cease to be National Forests.

Benefit for Public

"This legislation will not only make it easier to protect the Forests without costly expenditures to fight bad fires in inaccessible localities, but will also help enormously the many small communities and scattered settlers in and near the Forests who now suffer for lack of roads. It will also enable the construction of important trunk-line roads crossing the mountains, with suitable provision of subsidiary roads. One result unquestionably will be a marked development of recreational use of these great national playgrounds with their wealth of too little known attractions. Altogether, the opening up of the Forests to more complete and varied use by the public, which is the fundamental object of their administration, will be tremendously advanced."

Under the law preference is given to the employment of honorably discharged soldiers, sailors, and marines for the required labor.

There are plenty of garden seeds, but the supply of extra good ones is always small. Order early and get the best.

Don't be a quitter, but plant a garden again this year.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — MARCH 19, 1919 — No. 33

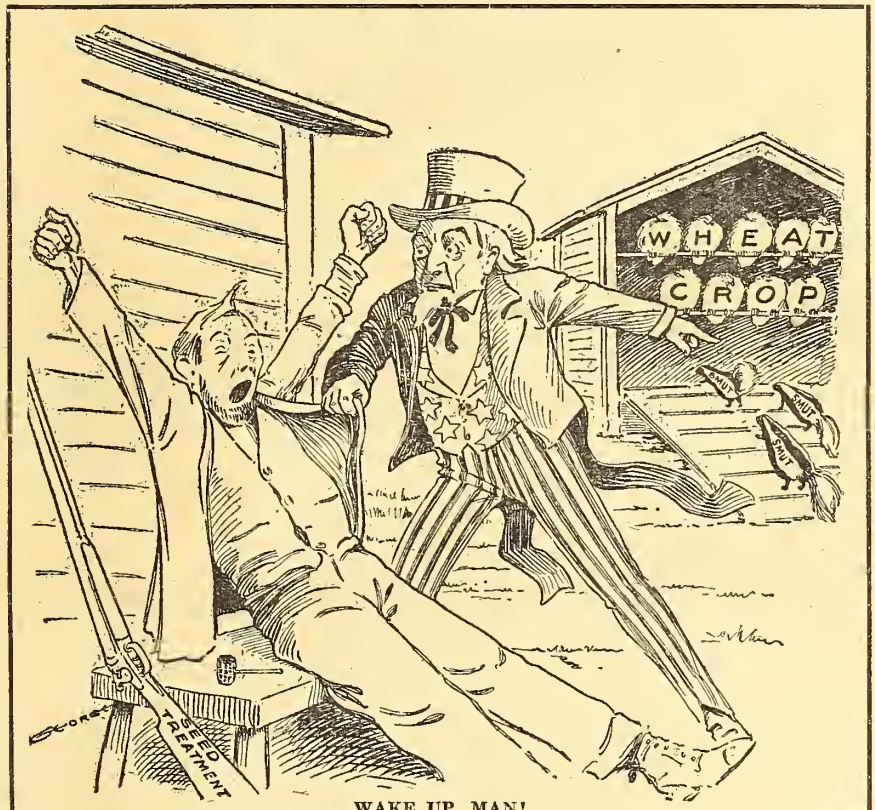
HUGE GRAIN LOSS FROM SMUT SAVED BY COOPERATIVE FIGHT

Department of Agriculture and States to Continue Demonstrations

Seed Treatment Growing Among Farmers; 25 Per Cent Used Method as Result of First Season's Work in 43 States

To keep the smut out of wheat and other cereal grains the United States Department of Agriculture started a campaign in September, 1917. The campaign is not finished. It has only begun. But 25 per cent more farmers than ever before planted treated wheat as a result of the first season's work, and it is likely that the number of farmers who treat their seed will increase from year to year as the campaign gains momentum.

There are a number of different kinds of smuts which attack the different cereals — wheat, oats, barley, and rye. The most striking feature of these diseases is the appearance of a fine, dark-colored dusty material which replaces the seed or heads of the grain. This dusty material is the spores or seed of the fungous parasite which causes the disease. Perhaps the most serious of these grain smuts is the stinking smut or bunt of wheat. When the wheat matures it is found that the grains are replaced by false kernels or smut balls. These are easily broken up into a fine dusty material—the smut spores. These have a disagreeable ordor, hence the common name of this smut. This odor can readily be detected on the leeward side of a ripening wheat field. It is also very evident during thrashing and on stored grain.



WAKE UP, MAN!

DRAWN FOR THE WEEKLY NEWS LETTER BY G. D. GEORGE.

High Per Cent of Smutted Heads

Workers in the emergency smut campaign last year found wheat fields in which the proportion of smutty heads ran as high as 74 in 100. In such cases, of course, the value of a field of wheat was almost completely destroyed. And that constitutes the largest element of damage—the wheat actually destroyed by the smut. But there is another big element

(*Continued on page 6.*)

BIG YEAR IN ROAD-BUILDING HOPED FOR AT CONFERENCE

Secretary Promises Every Help in Work Under Federal Aid Act

State Highway Officials Appeal to Railroad Administration for Reduction of Freight Rates; Ask Return of Engineers

Representatives of the highway departments of 27 Eastern, Southern, and Middle Western States, meeting at a conference in Washington March 1, called by Secretary Houston, were told by the Secretary that the department desires to give every possible help in expediting resumption and progress of highway building under the Federal Aid Road Act.

Arrangements were being made for a similar conference soon with highway department representatives from the States not represented at the meeting.

Secretary Houston announced at the conference that the Post Office appropriation bill, carrying $209,000,000 additional funds for highway construction under the Federal Aid Road Act, had been signed by the President, thus becoming law. A canvass of the representatives in attendance indicated that if conditions are favorable there will be spent for road building during the next 18 months approximately a half billion of dollars, from Federal,

State, and local funds. This work, it is estimated, would employ more than 100,000 men in active road work, in addition to the men engaged in the production and furnishing of road-building materials.

The representatives of the State highway departments reported that existing freight rates are a serious impediment to the immediate resumption of road building. Accompanied by Clarence Ousley, Assistant Secretary of Agriculture, they presented the situation to officials of the Railroad Administration. They received a sympathetic hearing and were given the promise that the matter would be taken under advisement, with a decision probably in about 10 days from that time.

The Secretary of Agriculture announced at the conference that resumption of highway work has the active interest of President Wilson, who had urged immediate consideration of the problem in a radiogram sent while the President was returning to this country from Paris.

Would Return Army Engineers

Secretary Houston promised to take up with the War Department the request of the State highway officials that Engineer regiments, now in France and containing a large number of highway engineers, should be returned to this country and be demobilized.

The Secretary said that highway work is desirable this spring and summer not only for the sake of the improved roads themselves, but for the employment such work will furnish to men discharged from the Army and from war industries. After hearing reports of the status of road work in various States, and the sentiment among the people for better roads, he said that the situation is highly encouraging and the State highway departments can count on every help that the department can give in using the money available for Federal-aid road work. He declared his belief that highway work should be resumed immediately notwithstanding present costs of materials and labor, and that such a procedure would be the cheapest thing in the end for the country at large.

Tell of Progress in States

Among the State officials who reported on conditions were Col. W. D. Uhler, of Pennsylvania, who said that Gov. Sproul "has ordered the road campaign this year pushed to the limit"; Frank F. Rogers, of Michigan, who said his State is preparing to start an intensive road campaign as soon as the weather permits; T. H. McDonald, of Iowa, who said a sentiment is sweeping over the Middle West for high-grade roads in preference to cheaper construction; Edwin A. Duffey, of New York, who said that one of the greatest problems before road builders is the carriage of heavy trucks and that limits should be placed upon the loads allowed to traverse improved highways.

W. M. Williams, solicitor of the Department of Agriculture, explained various provisions of the amendment to the Federal Aid Road Act, as contained in the Post Office Appropriation Act, and said that the most liberal interpretations possible will be placed upon the law by his office in order that road building may be expedited.

The following State highway officials attended the conference: W. S. Keller, State highway engineer, Alabama; R. S. Saunders, Connecticut; Wm. F. Cooke, State road commissioner, Florida; Judge T. E. Patterson, chairman, State highway commission, Georgia; S. E. Bradt, State superintendent of highways, Illinois; T. H. MacDonald, chief engineer, Iowa; Duncan Buie, State highway engineer, and I. W. Sylvester, Louisiana; Paul D. Sargeant, chief engineer, Maine; Wm. D. Sohier, chairman, State highway commission, Massachusetts; Frank F. Rogers, State highway commissioner, Michigan; C. M. Babcock, State highway commissioner, Minnesota; J. M. McBeath, chairman, State highway commission, Mississippi; E. L. Sanford, chairman, State highway commission, Missouri; George E. Johnson, State engineer, Nebraska; Frederick E. Everett, State highway commissioner, New Hampshire; W. G. Thompson, State highway engineer, New Jersey; Edwin A. Duffey, State highway commissioner, New York; W. S. Fallis, State highway engineer, North Carolina; H. D. Bruning, chief engineer, Ohio; L. S. Sadler, State highway commissioner, and Col. W. D. Uhler, State highway engineer, Pennsylvania; Abram L. Atwood, chairman, State board of public roads, Rhode Island; I. W. Patterson, chief engineer, M. G. Homes, and J. R. Pennell, State highway engineers, South Carolina; J. J. Murray, secretary, State highway department, Tennessee; Curtis Hancock, chairman, State highway commission, and J. G. Fowler, State highway commissioner, Texas; Stoddard B. Bates, State highway commissioner, M. N. Stocker and M. M. McIntosh, Vermont; George P. Coleman, State highway commissioner, Virginia; Maj. C. P. Fortney, chairman, State road commission, West Virginia.

The mean monthly price of veal calves to producers in 1918 was $11.88 a 100 pounds, advancing from $6.45 in 1912 and $10.47 in 1917. The price in 1918 went as high as $12.57 in September.

GOOD GOAT METHODS GET MORE MEAT AND MOHAIR

Division of Range Advocated to Bring Best Returns to Growers

Many Bed Grounds Help to Prevent Wearing Out Feeding Grounds; Types of Animals That Prove Most Profitable

Production of mohair and meat on goat ranges in the West may be readily increased, according to Bulletin 749 just issued by the Department of Agriculture, provided certain methods are adopted for the management of the range and the goats.

One of the most important points is to follow a plan of grazing which will give the vegetation a chance to grow sufficiently to maintain itself. Most goat ranges are used throughout the year. This and the general practice of driving the goats out from a corral at the ranch headquarters and back every day for months or throughout the year have been largely responsible for deterioration of the range. An excellent method of giving the forage a proper opportunity for growth is to divide the range into three areas—one for spring, another for summer and fall, and a third for winter.

The number and distribution of the goats on these divisions should be such as to secure proper and uniform utilization of the forage. The divisions should be protected from grazing except during the seasons determined upon. On successive parts of the summer and fall range grazing should be deferred until after seed maturity of the forage plants so as to insure proper revegetation. On winter range the forage close to the sheds should be reserved for stormy periods only.

Would Change Bed Grounds

The old practice of bedding the goats on the same bed ground every night in the year prevents proper management of the range and results in overgrazing, in uneven utilization of the forage, and general depreciation of the range. This in turn has a bad effect on the condition of the goats and the production of meat and mohair. The use of many bed grounds widely distributed over the range aids materially in improving the quality and quantity of the forage, reducing the trailing and driving of the goats, and securing better growth of goats and mohair. The ideal system is to bed the goats wherever night overtakes them, and it is this system, called the "bedding-out" system, that growers of goats are urged to adopt wherever practicable.

The bedding-out system can not be strictly adhered to during kidding, during

periods of stormy winter weather, nor just after shearing; but its use at other times is practicable and it has many advantages. It reserves the feed on the kidding range and near the shed for critical periods, utilizes the forage to best advantage, eliminates overgrazing, makes possible the maximum amount of forage, and provides fresh feed at all times. This makes possible the grazing of a greater number of goats and secures greater production of meat and mohair; and the mohair is cleaner and of more even staple, which materially increases its value.

Range to be suitable for goats should possess a mixture of browse, grasses, and weeds, be free from continued heavy rains and snows, and be well supplied with bed grounds and watering places. Browse furnishes most of the range feed for goats throughout the year, so that it should be abundant. Grass and weeds are necessary for does and kids during the spring and summer, and are of considerable value at all times to give variety to the forage.

High-Grade Goats Best

Plenty of fresh palatable feed has a marked beneficial effect on mohair production, growth of the goats, and the proportion of kids raised. It also reduces the proportion of losses. Therefore, instead of overstocking a range with inferior goats, the producer should stock it with the number of high-grade goats which it can conservatively carry.

The range goat should be the large, well-built, early-maturing Angora, producing a large quantity of fine mohair. The body and chest should be relatively broad and deep, the back wide and straight, the thighs full, the ribs well sprung, and the legs short, strong, and set wide apart. Such Angoras make possible a substantial revenue from two sources—mohair and meat.

The does should be uniform, of good size, have good constitutions, be good producers of mohair, and should produce sufficient milk to insure proper growth of their kids. The bucks should more nearly approximate the ideal than the does. They should be large and vigorous and should produce a large quantity of high-quality mohair. Only those wethers which produce a very large quantity of fine mohair should be rtained in the herd after they are 2 years old.

The largest producers of wild hay in 1918 were South Dakota, 3,282,000 tons; Nebraska, 2,277,000 tons; Minnesota, 2,170,000 tons; North Dakota, 1,904,000 tons; Iowa, 690,000 tons; Kansas, 607,000 tons; Wisconsin, 456,000 tons; Colorado, 424,000 tons. Wild grass is cut for hay in every State.

SMALL CITIES LAX IN MILK INSPECTION; U. S. OFFERS AID

Government Information and Experts Available to Municipalities

Work Benefits Producers as Well as Consumers of Dairy Product; Uniformity from Use of Score Card

Investigations of milk supplies in 1,327 cities and towns in the United States have just been completed by the United States Department of Agriculture, which finds that only 265 report regular dairy and milk inspection. As a rule inspection is least developed in cities under 100,000, and a general laxity is especially noticeable in the case of those having less than 25,000 inhabitants. Of cities between 5,000 and 25,000 less than one-seventh report any dairy inspection, and in some of these the system of control is only partly developed, as indicated by the lack of suitable means, in the majority of cases, for analyzing milk.

All Cities May Have Pure Milk

According to the department there is no reason why smaller cities can not have as safe and as clean a milk supply as the larger cities; in fact a few of the small centers of population where the authorities and the citizens are alert to the need for pure milk have some of the best milk supplies in the country. In cities of more than 100,000 the investigation shows that greater attention is paid to dairy inspection and the character of supervision is also more complete.

Dairy inspection as now conducted is a benefit to producers as well as to consumers since it protects the careful dairyman who operates a clean dairy and sells a pure product from the competition of careless or dishonest producers. Uniformity in dairy inspection is being obtained by the use of a score card developed by the Department of Agriculture. This card is now used by more than two-thirds of the cities maintaining regular milk inspection.

The means of improving the milk situation in small cities, the department believes, lies in energy and leadership by local authorities aided by State or Government specialists. Such local leadership, together with funds and a spirit of cooperation are the principal requirements for converting a poor milk supply into a pure milk supply.

Department Will Help

The Dairy Division of the Department of Agriculture has assembled valuable information on the most effective systems of milk control including cities of all sizes. This reservoir of experience, and where necessary the personal assistance of Federal experts, are available to boards of health and civic organizations which are endeavoring to solve their local milk problems.

FRESH FISH, FROZEN, FINE; SUPPLY ON HAND IS LARGE

More Americans would enjoy fish if they would get the kind that is frozen hard as soon as they are drawn from the deep, cool sea. This method of freezing fish, then sealing in a jacket of ice, hardly before the wiggle is out of their tails, preserves the fine flavor of fresh fish, say specialists of the Bureau of Chemistry, United States Department of Agriculture, after studying the subject of how to get fish to the consumer in the best of condition.

If the retailer turns up his nose and says scornfully, "We never carry any cold-storage fish," just have him order a few pounds of hard frozen fish from his wholesaler. Have him get the right kinds—fine bloater mackerel (not Spanish), weakfish, whiting, or herring. There is a large supply of hard frozen fish of these kinds, accumulated to provide for war needs, but not yet used, say department specialists, and they sell for considerably less than the unfrozen wintertime supply. This is not because the unfrozen fish are better, the specialists say, but because the frozen fish were caught in the late summer when the schools are large and the fish are fat and plentiful.

Live-Stock Breeders, Importers, in Foreign Countries Listed

During the past year, in cooperation with the consular service of the Department of State, the Bureau of Markets of the United States Department of Agriculture has assembled extensive lists of live-stock breeders, importers, and associations of breeders in European countries, in order to supply the demand of American breeders and importers for such information.

Lists for the following countries have been completed and mimeographed for circulation: The United Kingdom, France, Italy, Switzerland, Spain, Holland, Denmark, Algeria.

Copies of these lists may be secured upon application to the Bureau's division of Foreign Markets Investigations.

White and yellow corn are raised in about equal quantities in this country, according to the county crop reporters of the Bureau of Crop Estimates

BETTER HOMES MAKE A BETTER NATION

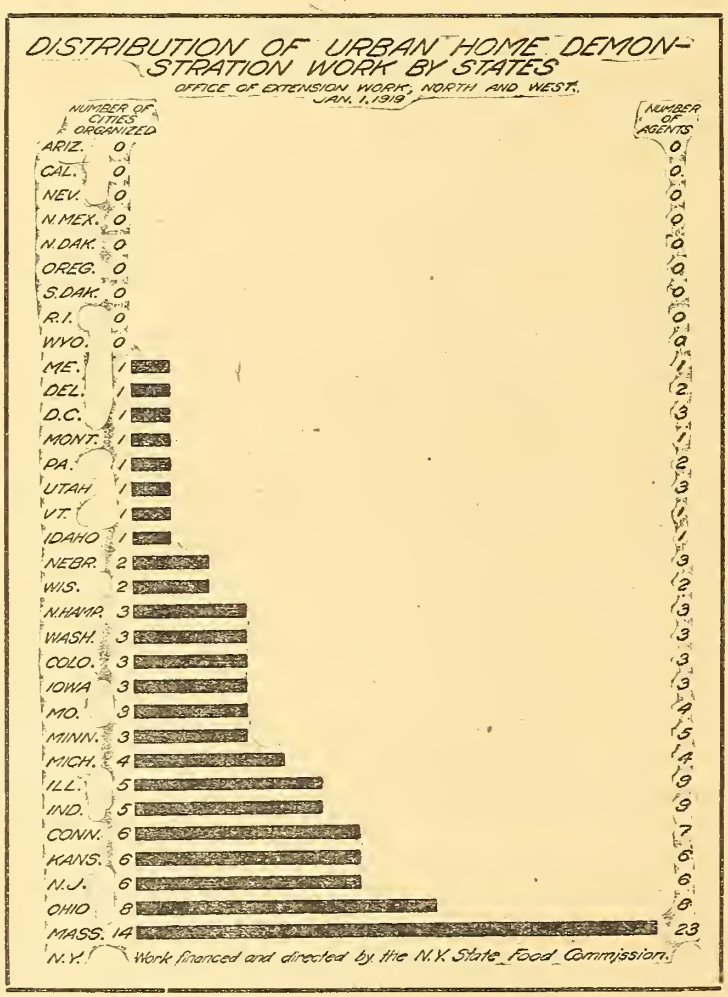
What Home-Demonstration Agents and Other Workers, Federal and State, Are Doing to Spread This Message in Town and Country

Story Hour Amuses Children As Mothers Gain New Ideas

Mothers of small children—the women who most need the help given by the extension specialist—usually are unable to attend demonstrations or lectures because there is no one with whom to leave the children, who are too active to remain quiet during the meeting. Many of the home demonstration agents have solved the difficulty by having a teacher, or some one who can handle children successfully, conduct a story or play hour in the adjoining room at the time of the lecture. The mother may leave her children there, knowing they will be safe and happy while she may hear the new ideas the home demonstration agent has to give her.

Meets Women in Office

A successful example of this kind is in Delaware County, Iowa. The home demonstration agent is getting the women, especially of the country, into the habit of stopping at the office every Saturday afternoon. Many who, before this innovation, knew little or nothing of the work being undertaken by the extension service now keep in close touch with what is being done.



Mountaineer Woman Cans to Keep 10 Children in School

Knowledge of how to can products that will command a ready sale is enabling a mother in the hills of Albemarle County, Va., to keep her 10 children in school. Schoolbooks and clothes cost money, but this ambitious mother was determined that her children were to have schooling if it were possible. The coming of the home demonstration agent of the Department of Agriculture and the State agricultural college to her neighborhood showed her a way of earning money for the purpose. Not only do home demonstration agents in Virginia teach the women how to can successfully, but they help them sell their surplus canned products.

Result of the Year's Work

Late in the fall, with a two-horse wagon loaded with her canned fruit and vegetables, this woman of the hills drove 20 miles to the home demonstration agent's headquarters. She brought 30 gallons of apple butter, 376 quarts of canned tomatoes, 8 quarts of ripe tomato catsup, 8 quarts of green tomato catsup, 12 quarts of succotash, 36 quarts of soup mixture, 12 quarts of okra, 12 quarts of fox grape preserves, 48 No. 2 cans of string beans, 36 No. 2 cans of corn, 48 quarts of canned peaches, 48 quarts of canned blackberries, 12 quarts of butter beans, 12 quarts of canned squash, 2 quarts of damson preserves, and 8 quarts of green tomato mince meat to be sold.

Through the efforts of the home demonstration agent, the wagon was emptied in a short time in the university town and

CANNING CLUB SAMPLE WINS HOTEL ORDER FOR PRODUCTS

As dual results from a milk-products luncheon put on recently by the home demonstration agent in Greenville County, Va., more milk is now being consumed there and all the surplus tomatoes in the county, canned by the club girls, have been sold. Every dish had milk or milk products for its basis and the entire menu met with the approval of those who sampled it.

One woman—the manager of a large hotel—was particularly enthusiastic over the cream of tomato soup, and after the demonstration she contracted with the home demonstration agent for all the tomatoes the club girls had canned. The guests of that hotel are to have cream of tomato soup and plenty of it in the future. Prime quality tomatoes are a requisite in making this soup and the 4-H brand put up by the club girls, under the instruction of home demonstration agents from the Department of Agriculture and the State colleges, has become well known because of its uniform excellence.

Dried fruits should be washed well and cooked slowly for a long period.

the little boys and girls up in the hills will have shoes and schoolbooks this winter as a result.

THIS IS SEASON TO GUARD AGAINST DAMAGE BY MOTH

This is the time when the little moth gets busy. It is much easier to bar him from your wardrobe than it is to put him out afterwards and repair the damage, and early in the spring is the time to use the "ounce of prevention." He is no discriminator of persons or things; the schoolboy's half-worn woolen mittens or your sealskin coat are all one to him when he starts on his perforating pilgrimage.

Woolen stuffs and fur are his favorite materials, and if, during the spring and summer, you do not carefully guard your garments made from these, they are likely to resemble sieves in the fall. Eternal vigilance seems the only successful method of protecting woolen garments from the pests. Garments which are used from time to time all summer can not be wrapped, but must hang in the closet and wardrobe ready for unexpected changes in the weather, but they will keep in good condition, the Department of Agriculture suggests, if the following precautions are carried out:

Keep the closet or wardrobe clean. If possible hang them in a closet with a window. Brush clothes thoroughly at regular intervals. Turn pockets wrong side out, cuffs down, and brush. Brush under lapels, plaits, and the top of hems. Every one knows how much dust collects in all of these crevices of clothing. If this dust is not allowed to remain, the moths will not have as good a lodging place.

The larger part of one's winter wardrobe is usually carefully "put away" in the spring to remain stored until cold weather appears again. Some people are fortunate enough to be able to send their clothing to a storage company which makes a business of seeing that moths do not damage garments left in its care. The rank and file, however, still have to follow grandmother's methods and pack their clothes in trunks or cedar chests, or wrap them up and store them on the closet shelf.

In the fall, when they are unpacked, there is always the fear that in spite of your care the moths may have found a way in during the summer. Much of this anxiety would be unnecessary if the garment were made absolutely clean when stored away, and if it were packed in as nearly an air-tight way as possible.

Thorough brushing should remove all moths and eggs, but hanging for a day in the sun and wind also helps. When the garment is clean, the next step is to wrap it up so carefully that the moths can not reach it. This can be done in several ways; sew it up in strong, brown wrapping paper—use pasteboard boxes and seal with strips of gum paper, or place the garment in paper bags which are sold for storage purposes.

Naphthalene flakes and pyrethrum powder are the two most effective remedies known for protecting clothes from moth infestation and for killing all stages of the insect. Camphor is less effective, and while red-cedar chests readily kill all adult moths they do not prevent the hatching of moth eggs. Tests show that the following substances often used for the purpose possess no value as moth "repellants": Tobacco extracts and powders, lavendar flowers, cayenne pepper, allspice, cloves, angelica root, black pepper, borax, colocynth pulp, eucalyptus leaves, formaldehyde, hellebore, lead carbonate, lead oxide, lime, quassia chips, sodium bicarbonate, and sodium carbonate.

Brushing, dusting with naphthalene flakes or pyrethrum powder, and careful wrapping are the best insurance against moths. Placing in a cedar chest provides additional safety.

HOW TO MAKE BRUSH THAT WILL TAKE MUD OFF SHOES

Recently Mrs. Brown issued an ultimatum which vitally affected the male members of her farm family. She supported the theory that cleanliness and godliness are twin attributes. She maintained that this cleanliness should extend to boots and shoes which come directly from the stable to the kitchen. In a word, Mrs. Brown, in common with thousands of other farm housewives, wants her men folks to brush or clean their footwear when they come into the house at mealtime or at night.

The Browns, father and sons, prefer to wear boots and heavy shoes during inclement weather, using rubber boots only on actually rainy days. They do not like rubbers because they come off easily in the mud, and also do not stand up well under rough farm usage. Overshoes suit them during the very cold season, but as a rule nine months in the year they wear boots. They formerly tried to brush the boots off every time they entered the house, but often the broom supposed to be kept on the porch would get mislaid with disastrous results to Mrs. Brown's clean floors.

The attention of the Browns and several million other farm families interested in clean footwear is called by the United States Department of Agriculture to an inexpensive three-way porch brush, which can be made at home from three scrubbing or cleaning brushes, or purchased from most supply houses. It consists of three foot brooms which are arranged, one at the bottom and the other two at the sides, in such a way that the foot can be drawn backward and forward through the device so that the dirt and mud will be removed. A strong box of the desired size, with its ends removed, makes a good foundation onto the sides of which the side brushes and one on the bottom may be nailed. Obviously no dimensions which could be given would be very useful because the size must suit that of the shoes to be cleaned. Since they are so easily constructed one could be made for the men and one for the children, the chief caution being that the side brushes should be close enough together to cause good friction on the shoe as it is drawn between them. Because of the friction taking place the device should be fastened securely to the doorstep or other firm foundation. If an old fashioned foot scraper, consisting of a piece of metal, were placed beside the broom device it would prove a valuable adjunct.

Some farmers practice the plan of always entering the house through a work room or shed or closet, where they remove their boots and don slippers. The objection to this method is that too often at the noon hour the farmer is hurried and neglects to take the time to make the change.

For use on dairy farms, where considerable work in washing milk cans and other dairy utensils is necessary, the wooden or steel soled shoe is recommended, and is inexpensive enough so that the average farmer can put it to good use.

CITY PLANTS 5,000 GARDENS

Crisp vegetables fresh from home gardens became so popular in Chattanooga last year that this season finds nearly every person with a place to plant busy with his plans for a vegetable garden. Meetings held by the garden specialist and home demonstration agent from the United States Department of Agriculture and the State Agricultural College were attended by 19,885 people. Lectures on modern methods of raising garden vegetables were given to attentive audiences. Five thousand back-yard gardens, with a total valuation of $62,171.25, were reported from Chattanooga. The peace gardeners are out to excel the records made by the war gardeners of last year.

Meat, milk, eggs, fish, cheese, beans, peas, nuts, and cereals are the foods which furnish protein in quantity for the human body.

Markets Show Present Demand Is for Draft Horses and "Southern Chunks"

Although horses on farms slightly decreased in number in the United States in 1918, this general fact is by no means true in all sections. It is true in the North from the Atlantic Ocean to Iowa and Missouri, and on the Pacific coast, but the reverse is the fact in one-half of the South, and in nearly the whole region between the Mississippi River and the coast States, except Iowa, Missouri, Arkansas, Texas, and Oklahoma.

In the North and in the Pacific States the kind of horse that is preferred on and off farms is changing. The automobile owner does not want a driving horse and the farmer with an automobile does not need a dual-purpose horse—a work animal that will also serve as a road horse. Medium and heavy draft horses are the new requirements.

Prices Follow Tendency

This tendency is reflected in prices. In the Chicago market, the mean price of draft horses rose from $171 in the five years, 1901–1905, to $213 in 1914. The mean price declined in the early period of the war to $205 in 1915, but ascended to $252 in 1916, fell to $212 in 1917, and recovered to $220 in 1918, or 29 per cent above the mean price of the five years, 1901–1905. The class of horses known in the Chicago market as "general" had the mean of $143 in the first five years of the century and reached as high a mark as $165 in 1913, but the mean for 1918 was $152, or 6 per cent above that of the five years.

Carriage teams and drivers are small features of the market. There is little demand for them and the supply corresponds. However, showy carriage teams sold for $1,500 to $10,000 in 1918. "Bussers and trammers" have been fully out of the market for several years.

"Southern Chunks" in Demand

The active southern demand for the "southern chunks" sent the mean price in Chicago from $61 in the five years 1901–1905 to $98 in 1913, followed by $88 in 1915, $109 in 1916, $93 in 1917, and $90 in 1918, a gain of 45 per cent in 15 years.

Hence, in the vicissitudes of preference and unpopularity in the various sections of the country, on farms and off, the average price of a horse on farms in the United States, all ages included, climbed from $55.47 on January 1, 1901–1905, to $111.46 in 1911, after which the decline was irregular to $98.48 on January 1, 1919, according to reports of the Bureau of Crop Estimates, United States Department of Agriculture. The market preferences are now for drafters and southern chunks.

HUGE GRAIN LOSS FROM SMUT SAVED BY COOPERATIVE FIGHT

(*Continued from page 1.*)

of loss. Take, for instance, a field in which 10 heads out of 100 are destroyed by smut. That might be interpreted to mean a 10 per cent loss, but it is more than that. In thrashing the one smutty head contaminates the grain from the nine sound heads, and the whole yield is a malodorous mess that buyers will only take at a price much below the market price of clean wheat.

It is estimated that the national loss due to wheat smuts—principally the stinking smut—in the 1918 crop amounted to 25,500,000 bushels. The two States of Minnesota and Nebraska lost 8,000,000 bushels of wheat from stinking smut alone. The estimated loss from oat smuts in 1918 is 110,000,000 bushels, and the estimated loss from barley smuts is 6,000,000 bushels—a total of 141,500,000 bushels of the three grains.

And practically all of that loss could have been prevented—easily prevented. There is no justification for growing smutted grain, specialists declare. Smut is borne on the seed. Clean grain becomes contaminated in thrashing, sacking, storing, and drilling. The preventive is to treat all seed wheat before it is sown—either soak it in or sprinkle it with a formaldehyde solution in the proportion of 1 pound of commercial formaldehyde to 40 gallons of water. That is true, at least, of practically all of the country. In Oregon, Washington, Idaho, and California the soil is infested and absolute prevention can not be attained by seed treatment. But that is due to local climatic conditions and, apparently, soil infestation does not occur throughout the rest of the country, and seed treatment is all that is necessary to prevent smut.

Work in Forty-Three States

But many people did not know these facts or how to apply them. That is why the smut eradication campaign was begun, and why it has been carried forward in 43 States for almost a year and a half now. It is the application of knowledge that has been accumulated during more than 30 years of investigation. Much of that information, of course, has been put out in bulletins and otherwise. To a great many farmers, however, the treatment of seed grain looked like a complicated process when they read it in a bulletin, but they realized the extreme simplicity of it when they saw it demonstrated. That is the justification for the seed treatment demonstrations in which an average of 2,630 farmers in each of the 43 States, or a total of 113,090, were shown how to prevent smut, and for the 21,500 visits to farms to personally advise farmers in smut prevention.

Observation and experience have shown that, in the present state of public sentiment, only the most progressive farmers will continue to treat their seed grain. The majority are not yet awakened to the losses sustained and the profit resulting from the inexpensive treatment. After a few years under demonstration methods, it is probable that the practice will become fairly universal and that losses from smut will be reduced to a negligible amount.

CUTTING TOLL OF SMUTS

The estimated national loss due to wheat smuts in 1918 crop is 25,500,000 bushels.

The estimated national loss due to oat smuts in the same crop is 110,000,000 bushels, and to barley smuts 6,000,000 bushels—a total loss of 141,500,000 bushels of grain.

In September, 1917, the United States Department of Agriculture began a campaign for the prevention of cereal smuts.

Methods of seed treatment to prevent smut were demonstrated to 113,090 farmers in 43 States, and 21,500 farmers were personally advised on their farms regarding smut and smut prevention.

Twenty-five per cent more farmers treated seed than formerly.

And the campaign has just fairly begun.

B. A. I. DIRECTORY PUBLISHED

A directory of the Bureau of Animal Industry of the United States Department of Agriculture has just been published by the department. The directory contains the names of all the officials connected with the inspection work of the bureau, stations, their location, and the lines of work and officials in charge of each. The meat-inspection establishments under the supervision of the bureau are listed by numbers and by stations. The directory also lists the meat-inspection laboratories with the names of men in charge and the territory covered by each laboratory. Cities where inspection of meat and meat-food products are maintained also are shown. Copies of the directory can be obtained by applying to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Urge Farmers To Use Old Potash Beds; Rich Marl Resources in Many Places

Peter Schenck, a Marlborough, N. J., farmer, had a drainage ditch dug back in 1768. He scattered some of the dark-colored mud from the ditch over the neighboring fields. Subsequently he noticed that on the spots where the mud had fallen the crops grew the greenest and thickest. Other farmers tested out the mud and ultimately, after the Revolutionary War, its agricultural use as a soil improver, containing from 2 to 8 per cent of potash, became an established practice. In the sixties several railroads were built in New Jersey for the express purpose of hauling marl or greensands from the deposits to the farm. It was estimated that in 1867 one of these roads hauled 1,000,000 bushels of marl, while the total quantity handled in the State was 20 times that amount. About 1830 the extensive use of marls took place in Virginia, a practice that more than doubled the agricultural value of the land in the coastal plain section, according to the best authorities.

To investigate conditions and if advisable to revive the use of the neglected potash resources of the greensands, which were practically abandoned after the Civil War, scientists of the United States Department of Agriculture, during 1917 and 1918, began careful survey of the Middle and South Atlantic marl deposits. The report of the scientists urges a resumption of the former methods of marling where the hauling factor is not prohibitive. Several commercial concerns are now engaged in the refining and sale of the marl potash. It should be remembered that these are potash-containing marls, not the much more widely distributed calcareous marls.

Greensand Is Fossil Formation

The greensand marl beds stretch from Sandy Hook, N. J., skirting the Delaware River and extending along both sides of the Chesapeake and Delaware canal through the Sassafras River country down past Annapolis, Md., and Washington, D. C., southward into Virginia to points below Richmond. The greensands of which they are in part composed are really fossils of very low forms of animal life, which contain potash and oftentimes also phosphoric acid and lime. The farther south the deposits extend, the poorer in potash content and the higher in calcium content they are. Technically speaking, the beds are called greensands where they are relatively rich in potash to the extent that it is practical to dig and haul the material for agricultural purposes, while where the calcium predominates they are known as marls.

The potash in the greensands is slowly available, this fact making it possible for a farmer to make heavy applications of the greensands at one time adequate for long periods. The marl method is a sort of free lunch counter way of feeding the crops. One farmer applied 50 tons of the material to the acre and estimated that the potash resources of his soil were well stocked for coming years, perhaps decades. Years of practical experience on the part of hundreds of farmers have demonstrated that the wintertime digging, hauling, and spreading of marl in many localities is profitable work for the farm labor which otherwise would be comparatively idle in many sections proximate to the greensand deposits. Since some greensands are found to be acid, it is desirable to guard against possible injury by using lime with such deposits.

Marling Abandoned After Civil War

From 1815 to about 1870 New Jersey farmers made extensive use of their marls, the owners of marl beds selling small deposits to neighboring farmers outside the marl belt at from $25 to $50 apiece, according to the area purchased. Many farmers disposed of much of their farms in this manner.

The use of greensand as sources of potash was practically abandoned after the Civil War, due to the scarcity and increased expense of labor, and because of widespread commercial fertilizer propaganda which urged farmers to buy and apply such forms of plant food. The popularity of the commercial fertilizers gradually backed the use of marls off the agricultural map in New Jersey, Delaware, and Maryland, and sidetracked this rational and economical method of securing this domestic potash supply.

The limiting factor which is likely to govern the use of these cheap forms of potash is the hauling distance from the beds to the farms where it is to be used. At the present time it appears that there is a good opportunity for farmers whose land needs potash and whose places are not more than five or six miles from a marl deposit to work their teams in hauling the material during the idle seasons of the year. Greensand marl is to the potash family what raw rock phosphate is to the phosphate family, except that the best marls are sometimes even more valuable, inasmuch as they may contain valuable amounts of phosphoric acid and lime in addition to the potash salts. Where the roads are good and where a 3 to 5 ton motor truck is available it would seem worth while considering whether the marl could not be hauled profitably an equal or perhaps a greater distance for application on fields needing it.

Economies Revived by War

During the period of the war farmers have learned economics to which they were previously unaccustomed, and during the era of agricultural adjustment a reversion to the practice of marling in New Jersey, Delaware, and Maryland, as well as Virginia, which are liberal patrons of commercial fertilizers, would be in accord with the spirit of saving and conservation which permeated our country during the hostilities.

Exceedingly interesting results developed from the investigation by the United States Department of Agriculture to determine the presence and value of marls throughout North Carolina and South Carolina. It was ascertained that the marl belt extended south from Virginia through the Carolinas, but that the material was valuable principally for liming purposes, the marl in the best beds running as high as 50 per cent and even more in calcium oxid content. The special value of the investigation was the discovery that many Carolina farmers were importing lime from Tennessee at considerable expense when they had valuable marl deposits on their farms which they did not know about.

One morning a Federal investigator stopped at a South Carolina farm where a well was being bored. He noticed the bluish-gray color of the mud turned up from the shaft, which at that time was 36 feet deep. He tested the material with some acid which he carried and found that it was marl, rich in lime. The scientist inquired of the owner of the farm where he secured his lime supply.

"I have just shipped in five carloads from Tennessee and my neighbor has ordered a like amount," replied the landowner. Calcareous marl beginning at a depth of 5 feet from the surface and extending certainly to a depth of 39 feet underlay the place.

Naturally these men were greatly surprised to learn that they had rich lime resources on their farms.

Such regional investigations are regarded of much value in educating local farmers concerning their home resources.

Crop reporters of the Bureau of Crop Estimates throughout the United States report an average price of hogs to farmers a 100 pounds of $15.92 as the mean of the monthly prices. In 1915 it was $6.59; in 1916, $8.20; and in 1917, $13.59.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

BE AMERICAN!
WORK AND SAVE.
BUY WAR SAVINGS STAMPS.

CROPS THAT STOOD OUT IN FRONT BEFORE WAR BEGAN

Leading place among the crops in the average values of 1910-1914, before the war had begun to derange prices, was held in Maine by hay, the value of which was 36 per cent of the value of all crops; potatoes came next with 24 per cent. Hay was first in all of the North Atlantic States, and potatoes second in all but three. In Connecticut, tobacco was second, and corn in New Jersey and Pennsylvania. These comparisons are clearly indicated by the estimates of the Bureau of Crop Estimates.

As may be expected, corn was the principal crop in the North Central States, extending on their southern border from Ohio to Kansas, except that along the northern border hay led in Michigan and Wisconsin, and wheat in Minnesota and North Dakota, while in Kansas, also, wheat was the chief crop. Corn was second in importance in Michigan, Wisconsin, Minnesota, and Kansas; wheat in South Dakota, Indiana, and Nebraska; hay in Ohio and, equally with oats, in Missouri; and oats in Illinois, Indiana, and North Dakota.

In the South Atlantic States it was corn that stood first, except for cotton in North Carolina, South Carolina, and Georgia, and in these three States the second place was held by corn. Wheat had second place in Delaware and Maryland, hay in Virginia and West Virginia, and cotton in Florida.

The South Central States, with their large agricultural area, had corn for leading crop only in Kentucky, Tennessee, and Louisiana; elsewhere cotton was chief. In most of these States corn had second place, but tobacco was second in Kentucky, and cotton in Tennessee and Louisiana.

In the extensive West hay was the chief crop in value, except wheat in Washington and Oregon, and hay equally with wheat in Montana. For second place, the crop list was larger in 1910–1914 than for first place. It was wheat in Arizona (cotton now), Utah, and Idaho; oats in Montana and Wyoming; hay in Washington and Oregon; corn in New Mexico; wheat equally with potatoes in Nevada; while in California barley was the chief grain, but perhaps was exceeded in value by oranges, as it is now.

HOW TO IDENTIFY PLANTS THAT POISON MEAT ANIMALS

The United States Department of Agriculture is directing attention to the great saving of meat that can be effected through prevention of stock poisoning by poisonous plants of the Western cattle range.

Bulletin 575, issued by the department, tells how to identify many of the plants that have caused thousands of animals to sicken and die, and also gives methods of treatment for animals poisoned through eating the plants. The bulletin also contains pictures of poisonous plants and aims to give help of such a nature that scientific knowledge will not be necessary in making use of the information contained.

Estimates made in many localities indicate the average loss of range animals must be as great as 3 to 5 per cent, while in some range States it rises to much higher figures. In Colorado, it is estimated the losses amount to $1,000,000 annually, while sheep growers in Wyoming have placed their annual loss as 14.6 per cent. These losses, too, to a large extent are of mature animals ready or nearly ready for market and for the rearing of which large sums have been spent.

The department's extended investigations of poisonous plants of the range is still in progress, but the definite results obtained so far have been sufficient to show that the heavy losses are due to a comparatively small number of plants. If the stockmen and herders can recognize these plants and will act upon the information contained in the new bulletin and others which have been published on the subject, it is believed that most of the heavy losses can be avoided.

WATCH PEDDLERS OF STOCKS FOR U. S. GOVERNMENT BONDS

The war loan organization of the Treasury Department has sent the following statement to all publications:

"Publications cooperating in the Victory Liberty Loan campaign can be of material assistance by voluntarily publishing regularly some such invitation as the following:

WATCH THE STOCK PEDDLERS

Readers: Get the names and addresses of all persons and companies offering you speculative or doubtful stocks and securities, particularly if in exchange for your liberty bonds or war savings stamps, with copies of their "literature." Mail them promptly for investigation to the

Federal Trade Commission,
Washington, D. C.

HELP THE VICTORY LIBERTY LOAN

"Upon receipt of such information, the Federal Trade Commission will call for full reports in proper cases. The Federal Trade Commission act provides a penalty of a fine or imprisonment or both for those who fail or falsely report to the commission. It may make public so much of the information obtained as may be in the public interest, and it can prevent unfair methods of competition and misrepresentations in commerce."

STARTING HOUSEKEEPERS RIGHT

A home-demonstration agent in the District of Columbia obtains the names of prospective brides from the marriage license bureau and writes each a personal invitation to join one of her home-making classes. The response has indicated that nearly every girl is anxious to get her home started right, and welcomes an opportunity to obtain information on the subject. Once started to thinking about modern methods of living and saving work, she is likely to be permanently interested.

The Food Commission of Porto Rico found 326,000 cattle, including calves, on that island January 1, 1918, and 63,000 horses, 9,300 mules, 102,000 swine, 976,000 poultry, and 49,000 goats, all above the numbers of the census of April 15, 1910, except swine

Community Breeding Develops Better Cattle, Puts "Scrub" Sires in Discard

There is no advantage gained by keeping three or four breeds of beef cattle in the same community, except the satisfaction of personal preferences, but there are many advantages to be derived from keeping one and the same breed in the same community, according to specialists of the United States Department of Agriculture.

Probably the most important reason why the same breed of cattle should be kept in one community is that it develops community interest. Community breeding is certain to be a sympathetic tie binding the people together in the accomplishment of anything they desire. Community teamwork is worth much in the improvement of any country community. It teaches efficiency in the care of rearing of animals.

Brings Big Results

Community breeding is a very simple thing, but the value which it will be to the community is tremendous. There are many instances on record which are proof of its advantages. Wisconsin has a large number of community breeding associations, the strongest of these being the Waukesha County Guernsey Breeding Association, organized in 1908 to promote the breeding and improvement of high-grade and pure-bred Guernsey cattle. Although only organized 12 years ago this county is already known as the "Guernsey Capital of America," and buyers for carload lots of grade or pure-bred cows are attracted there from all over the country.

New Hampshire has many such breeders' associations in operation. Minnesota also has a large number. One of these at Northfield, Minn., a Holstein association, includes 225 herds and upward of 4,000 Holstein cattle, pure bred and grades.

West Virginia has organized many such associations. Ritchie County, especially, attracted wide attention for the reason that the "scrub" bull has been eliminated and the Hereford adopted and developed as the principal breed. More than 150 "scrub" bulls have been shipped out of the county during the past three years, and pure breds have taken their places, eliminating the "scrub" entirely. Many small herds have been started as a result of this movement. Buyers are attracted to this county without advertising, and they are unable to meet the demands for good breeding and stock cattle.

More Associations Needed

"Are there not more communities in every State which would be richer for having a community breeder's association?" ask the specialists. True there are many pure-bred sires used, but the need of more inspiration instilled into the beef-cattle business is apparent, such inspiration as is gotten from organization and cooperation, from getting together shoulder to shoulder, and from rubbing of elbows.

The United States Department of Agriculture or extension department of your State college of agriculture will be glad to hear of any such organizations already perfected or to assist in the organization of others. Is there good reason why communities throughout the South should not be noted for Shorthorn, Hereford, and Aberdeen-Angus cattle? Before the South can ever made a big stride as a beef-cattle center it must have community breeding. The first step in this direction is to eliminate the "scrub" sire.

WHAT COMMUNITY BREEDING IS

Community breeding simply means that the farmers in a certain community agree to do two things:

First, to breed but one breed of cattle, sheep, or hogs.

Second, they agree to use none but pure-bred sires, these sires being owned either individually or collectively.

Everyone is absolutely free to do as he pleases just so long as he sticks to one class of stock and uses a pure-bred sire. These ideas can best be carried out if the farmers are organized in a body and get together at stated periods.

OPPORTUNITIES FOR MEN IN FIRE-PREVENTION WORK

The United States Department of Agriculture desires to secure men with milling and grain experience to assist in the grain-dust explosion and fire-prevention campaign in the mills and elevators throughout the country. The appointments will be made at a salary of $135 a month and will be temporary, terminating not later than June 30, 1919. Men with training in one of the following lines will be eligible for appointment to this work:

(1) Milling, mechanical, electrical, or chemical engineering education, training or experience.

(2) Practical experience in grain mills and elevators in the manufacture and production of flour, feeds, and grain products.

(3) Experience in the manufacture, design, or construction of grain cleaning and handling equipment for mills and elevators.

Applications for this work should be forwarded promptly to Dr. C. I. Alsberg, chief of the Bureau of Chemistry, Washington, D. C., with a detailed statement of experience and training, together with any special qualifications which the applicant may have for this work.

MAY CHANGE U. S. STANDARDS FOR MOLASSES AND SIRUPS

The joint committee on definitions and standards is considering the advisability of revising the definitions and standards for molasses and sirups.

A public hearing will be held on this subject at 10 a. m. Friday, April 4, at the Monteleone Hotel, New Orleans, La. All persons interested are invited to attend and present any facts pertinent to the subject in general or to submit questions. Those who desire may present their views in writing to the committee at the Bureau of Chemistry, Washington, D. C.

The committee is especially desirous of securing the opinion of the molasses trade as to the meaning of such terms as "black-strap molasses," "New Orleans molasses," "Louisiana molasses," "sirup," "molasses," "refiners' sirup," or any others used by the trade.

The joint committee on definitions and standards is composed of chemists representing the United States Department of Agriculture, the Association of Official Agricultural Chemists, and the Association of American Dairy, Food, and Drug Officials.

NEW GLANDERS BULLETIN ISSUED

"The Ophthalmic and Intradermic Tests for Glanders" is the title of a new veterinary bulletin just issued by the Bureau of Animal Industry, United States Department of Agriculture. It gives the technique and directions for judging the reactions of both methods. The bulletin contains five illustrations for the guidance of veterinarians whose knowledge of the tests may be limited. Veterinarians may obtain copies of this publication, which is published in vest-pocket size, by addressing the Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

Cow-Testing Records Show How Yield of Butter Fat Rose 60 Pounds a Cow

Cow-testing associations pay—and pay well. Who says so? The dairymen who belong say so. Ten years' records from the oldest association in the United States says so. And several years' records from hundreds of associations tell the same story to the Dairy Division of the United State Department of Agriculture.

Association members say: "I am making three times as much net profit from 12 cows as I formerly made from 18." "Through the work of the association I have saved one-third of my feed bill." "The association has returned more than 500 per cent on what it has cost me." "I am perfectly astonished at the results. I thought I had a very good herd of butter cows, but have found many of them worse than worthless."

Results in Michigan County

The first cow-testing association in the United States began its work in Newaygo County, Mich., in 1906.

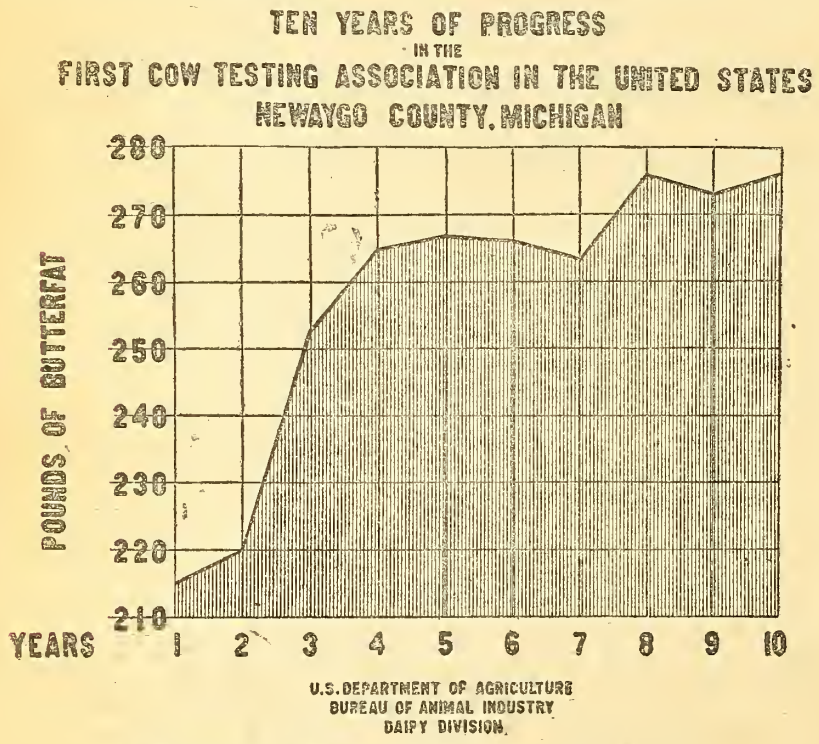
The average butter-fat production for the first year was 215 pounds a cow. It increased the second year to 220 pounds. It rose the third year to 253 pounds. The next year it passed the 260-pound mark, and it has been higher than that every year since. The average production of the last three years was 60 pounds of butter fat above that of the first year. How much the average of the first year exceeded that of the year before the work began is not a matter of record, but doubtless the first year of association work showed some striking gains. Even aside from those, however, and counting only the 60 pounds of butter fat, the gains are still far above the cost of testing.

The war temporarily stopped the work of the Newaygo County Association. At the end of the tenth month of the eleventh year the tester then at work resigned his position to fight for his country on the battlefields of Europe. The association will be reorganized as soon as a satisfactory tester can be found.

Fifty Per Cent More Productive

The estimated average butter-fat production of all the dairy cows in the United States is about 160 pounds a year. From 80 yearly summaries of cow-testing associations, including the records of 26,710 cows, their butter-fat production averaged 245 pounds a year. That is more than 50 per cent above the country's average production, and a large part of the gain may fairly be attributed to association work.

From every point of view, therefore, the cow-testing associations seem to be successful. Measured by the strict rules of the investigator they have made good; tried out in the field of practical experience they have proved true; weighed in the balance of public opinion they have not been found wanting.



A MOUNTAIN OF BUTTER FAT THAT COW TESTING MADE

LARD AND FAT COMPOUNDS GAIN IN SURVEY SHOWING

Commercial stocks of lard reported to the Department of Agriculture in a survey made for January 1, 1919, amounted to 115,507,422 pounds, while the holdings of lard compounds were 53,363,813 pounds, and of solid vegetable cooking fats, 43,695,567 pounds. These quantities, which were reported by meat packers and other manufacturing concerns, including bakers and other large users, by storage establishments, and by wholesale dealers, include quantities in transit on the date of the survey as well as stocks actually on hand.

The quantities of other fats and oils reported were as follows: Oleo stock, oleo oil, and edible tallow, 33,410,286 pounds; cottonseed oil, 37,439,514 gallons; olive oil, 651,867 gallons; peanut oil, 2,701,598 gallons; corn oil, 2,506,853 gallons.

These quantities, as reported for January 1, 1919, are equal to the following percentages of the stocks held by the same firms a year earlier—on January 1, 1918: Lard, 135.6 per cent (representing an increase of 35.6 per cent); lard compounds, 133.1 per cent; solid vegetable cooking fats, 173.4 per cent; oleo stock, etc., 81.1 per cent; cottonseed oil, 100.4 per cent; olive oil, 44.6 per cent; peanut oil, 105.2 per cent; corn oil, 165.7 per cent.

TOBACCO ACREAGES ESTIMATED

Seven per cent of Virginia's tobacco acreage in 1918 was devoted to sun-cured tobacco, 36 per cent to Virginia dark, and 56 per cent to old bright tobacco. In North Carolina old bright tobacco was on 34 per cent of the acreage and new bright on 66 per cent. In the leading tobacco State, Kentucky, 44 per cent of the tobacco acreage was devoted to burley, 18 per cent to stemming tobacco, 8 per cent to One-sucker, 16 per cent to the Paducah district, and 13 per cent to the Clarksville and Hopkinsville district.

Iowa's live stock on farms is worth much more than that of any other State and has a value of $745,000,000. Illinois follows in order with $492,000,000, Texas with $455,000,000, Nebraska with $423,000,000, Missouri with $407,000,000, and Kansas with $400,000,000.

Frost Reduced to Rule; Crops Saved from Damage by Following Averages

In most farming operations there is from time to time more or less loss occasioned by frost. It is important, therefore, that the frost situation, which varies greatly in different sections of the country, be carefully studied in connection with farming operations, particularly in spring planting. Under ordinary conditions fairly big frost risks can be taken in early planting for some crops, where high prices are usually realized for the early marketed products, but large risks are not advisable as a rule for general crops.

The simplest of all frost summaries, says the Weather Bureau, United States Department of Agriculture, is the arithmetical average date of the last killing frost in spring and the first in autumn. Killing frost may be expected on the average in half the years as late as the average date of occurrence so that all exposed vegetation susceptible to frost damage on that date will be liable to injury or destruction in 50 per cent of the years.

Killing Frost in All States

With the exception of Key West and some of the neighboring keys, killing frost has occurred in all parts of the United States. It does not occur, however, as a rule along the South Atlantic coast from central South Carolina southward, and in the southern portions of the Gulf Coast States after March 1. To the northward, the average date of the last killing frost in spring becomes progressively later to April 1 in the southern portion of North Carolina, the northern portions of Georgia and Alabama, northern Arkansas, north-central Oklahoma, and northwestern Texas.

The line showing the average date for May 1 extends, roughly, from southern New England southwestward over the Appalachian Mountains to northwestern North Carolina, and then curves northward to central Ohio. Thence it extends in a westerly direction through the northern portions of Indiana and Illinois, and the central portions of Iowa and Nebraska. In limited areas in the extreme northern portion of the country and also in the higher altitudes of the West the average date of the last killing frost in spring is after June 1.

Wide Diversity in West

From the Rocky Mountains westward, owing to the diversity of topography, wide variations obtain in the average dates of the last killing frost in spring and first in autumn, and consequently no general statement can be made applicable to this region. The average spring dates range from before April 1 along the central and southern California coast to after June 1, in the higher elevations of the Plateau and Rocky Mountain districts.

WELL-KNOWN HORSEWOMAN TO AID DEPARTMENT WORK

Mrs. Herbert Wadsworth, a well-known horsewoman, has been appointed a specialist in horse husbandry in the United States Department of Agriculture, and as a representative of the department will continue her work with the Genesee Valley (N. Y.) Horse Breeders' Association, which she organized.

Mrs. Wadsworth's work in assisting farmers of the Genesee Valley in raising better horses, and the support she has given the Livingston County (N. Y.) fair impressed officials of the Federal Agricultural and War Departments as being so practical that when she requested the cooperation of the Department of Agriculture in her enterprise it was immediately granted.

Her Work Praised

The Department of Agriculture feels that the sort of work Mrs. Wadsworth has done should be encouraged because it is materially improving the horse-breeding industry in that section of New York. In addition to directing the work of the association in the Genesee Valley, Mrs. Wadsworth is successfully managing an estate of 11,000 acres.

When this New York horsewoman first interested the farmers in Genesee Valley in better horses, she obtained a number of high-class thoroughbred stallions, some of which had good racing careers. These were placed in the hands of local farmers, who got the service fees for taking care of the stallions. She also placed high-class mares with farmers on easy terms to build up their stock. All horses were selected for good dispositions, good conformation, soundness, bone, and size.

As a result of her work, Mrs. Wadsworth has demonstrated the value of thoroughbred horses, and now many farmers in the Genesee Valley use horses in their daily work which are half or even entirely thoroughbreds. The improvement of horses brought about by the Genesee Valley Breeders' Association has not been surpassed by any similar association in the United States, say officials of the Federal department. In addition to giving expert advice and counsel in horse breeding, Mrs. Wadsworth has assisted the members in finding a market for their high-class animals.

Thoroughbreds Encouraged

Mrs. Wadsworth has also taken a great interest in the Livingston County Fair, held at Avon, N. Y. Last year at this fair $2,650 was offered as prizes in the breeding classes for colts sired by thoroughbred stallions and mares bred to thoroughbred stallions. These prizes were open to competition by all farmers in the county, whether members of the breeders' association or not. However, all members of the breeders' association are required to show their colts unless especially exempted. A large number of premiums were offered in each class, so that all good entries received recognition.

It will be remembered that Mrs. Wadsworth has frequently proved her ability as a horsewoman by long-distance rides. Her ride in 1910 is a world's record. She rode 212 miles in 20 hours, including all stops, the actual riding time being 15 hours 20 minutes. She used 12 horses in all, 4 of them being young horses which had been broken the previous spring. It was a coincidence that this ride was undertaken at a time when all Army officers of field rank were required to demonstrate their ability as horsemen by riding 90 miles in three consecutive days.

NATIONAL FOREST AREAS REDUCED

The President has signed a proclamation eliminating 31,779 acres from the Helena National Forest, Mont. The lands affected are situated along the exterior boundaries of the forest and a large portion of the lands excluded are already in private ownership. This action is based on the recommendation made by the Secretary of Agriculture as a result of the land classification done by the Forest Service. It was found that the lands had practically no value for national forest purposes.

Another proclamation signed by the President eliminated 63,547 acres from the Nevada National Forest, Nev. This action was based on recommendations made by the Forest Service and approved by the Secretary of Agriculture as a result of the completion of the land classification of the Nevada forest. The areas excluded are situated along the exterior boundaries and were found not to be of value for forest purposes.

Gov. Stuart Ends Active Duty as Head of Agricultural Advisory Committee

Former Gov. H. C. Stuart, of Virginia, chairman of the National Agricultural Advisory Committee, which was organized a year ago to work with the United States Department of Agriculture and the United States Food Administration, ended on March 8 his active duties as chairman of the committee and closed the committee office in the Department of Agriculture.

Thanked for Services

In a letter to Gov. Stuart, the Secretary of Agriculture, D. F. Houston, said:

MARCH 6, 1919.

MY DEAR GOV. STUART: I have your letter calling my attention to the fact that the functions of the National Agricultural Advisory Committee, as related to the Food Administration, would probably terminate on March 1; that you desired to be relieved, as chairman of the committee, from further active duty; and that, subject to my approval, you were fixing March 8 as the date for vacating the offices now occupied by you.

The acute conditions which led to the creation of the committee have passed and I therefore do not feel justified in asking you or the other members of the committee to assume further obligations or responsibilities. I know that each member of the committee has matters of importance requiring persistent attention and should not be called upon to make further sacrifices unless the public welfare demands it.

I desire to express, through you, to all the members of the committee, my grateful appreciation of their response to the call for service made by the Food Administrator and myself. The committee rendered valuable assistance to this department and to the Nation during the trying experiences with which we were confronted and was a constant aid and comfort. As a special evidence of his service and of our appreciation, there will be forwarded in the near future to each member of the committee an official certificate.

With cordial good wishes to all the members of the committee and with assurances of my personal pleasure in associating with them, I am

Faithfully yours,

D. F. HOUSTON,
Secretary.

Courtesies Appreciated

The foregoing letter was in response to the following:

FEBRUARY 28, 1919.

MY DEAR MR. SECRETARY: You will recall that several days ago I informed you that the functions of the National Agricultural Advisory Committee, as related to the Food Administration, would probably terminate about March 1, and that at or about that time I would be glad to be relieved as chairman of the committee from further active duty, unless there was some reason in your mind to the contrary. It is, of course, for you to say when and how the committee is to go out of existence, so that I will hold myself ready to receive from you and communicate to the members of the committee a statement of your views and wishes in the premises.

There will be some matters needing attention in connection with the relief of the committee, whether it be final or tentative, which will require a few days of my time, so I am fixing, subject to your approval, March 8 as the date for vacating the offices now occupied by me.

I take this opportunity of renewing my assurances and those of the committee of the most genuine appreciation of the official courtesies and marks of confidence extended from the appointment of the committee to this, the anniversary of its initial meeting.

Very truly, yours,

H. C. STUART,
Chairman, National Agricultural Advisory Committee.

DON'T KILL GAME IN SPRING; WILD FOWL NEED FAIRNESS

Birds which have survived the fall hunting season and have successfully withstood the winter months should be allowed to pass in peace to their breeding grounds in the spring, say officials of the Biological Survey, United States Department of Agriculture, in a statement just issued urging hunters to observe and enforce existing game laws.

One of the most important and necessary steps in the conservation of wild game, the specialists add, is the prohibition of spring shooting of wild fowl. Sportsmen should refrain from hunting at this season, not only from a sense of fairness but because such action is absolutely necessary to the continued existence of wild fowl. The spring-flight birds are the stock from which must be derived the annual crop harvested in the fall gunning season, as well as a surplus to furnish the next year's breeders.

A great victory for game conservation was won with the passage of the first Federal law for the protection of migratory birds, the department specialists believe. Instead of separate statutes for each State, often conflicting in purpose and devised without special thought of the perpetuation of the game supply, the country now has a law applicable in the same form over large areas and having as one of its main purposes the stopping of the very destructive practice of spring shooting. The benefits resulting from this law are unquestionable, for ever since it has been in effect reports have come from all parts of the country of a steady increase in the number of migratory game birds.

The migratory-bird law of 1913 has been superseded by the migratory-bird treaty act putting into force the treaty with Great Britain for the protection of birds migrating between the United States and Canada. Regulations promulgated under this law give more strict protection to birds on their northward flight than they have ever previously enjoyed. Prior to the passage of those laws the game supply had steadily decreased owing to the increasing number of hunters and the crowding out of the birds from their breeding grounds, which have been cleared for agricultural and other purposes. The remedy, Federal officials believe, is the best possible observance and enforcement of the existing game laws, an increase in the number of game refuges, and a great extension of game farming.

Some Live Stock Gains

Live stock on the farms of the township crop reporters and of the special live-stock reporters of the Bureau of Crop Estimates was more in number in 1919 than in 1918 on January 1, in these classes: Horses and mules, by 1 per cent; calves, 2.7 per cent; heifers (for milk), 11.4 per cent cent; heifers (not for milk), 6 per cent; all cattle, 1 per cent; swine, over 6 months, 4.1 per cent, under 6 months, 11 per cent; poultry, layers, 1.6 per cent, nonlayers, 7.7 per cent. A reduced number was reported for cows by 1.3 per cent, and for steers by 3.6 per cent.

The average price of unwashed wool in the United States to producers was 17.9 cents per pound in 1912 and 16.7 cents in 1913, after which year the price climbed to 27.6 cents in 1916, 42.2 cents in 1917, and 58 cents in 1918. In the last year the range of monthly prices was from 56.2 cents December 15 to 60 cents on March and April 15.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

This "Tick" Costly, Too.

"One of the Bureau of Animal Industry slogans," declares an Idaho editor, "is a 'tick-free South.' Whether it is the kind of a tick that infests cattle in warm countries and whose ravages cost up to $40,000,000 a year, or the still more expensive 'tick' which consists of buying things for which you have not the cash in sight to pay, it is a good thing for the whole country to be free from."

According to specialists of the Bureau of Animal Industry, the passing of the cattle tick is followed closely by the introduction of improved live stock and other sources of prosperity. Thus it appears that with the eradication of the cattle tick, southern States will enjoy increasing freedom from the burdensome "tick" of time buying. Especially the dairy industry, which has been developing in the tick-free areas of the South, is recognized as a cash industry since the products of the dairy herd are produced and marketed throughout the year.

Plan Wholesome Lunches for Miners.

In the mining counties of Pennsylvania the home-demonstration agents, under the supervision of the United States Department of Agriculture and the State agricultural college, have been asked by mine superintendents to help plan nutritious, simple lunches for the miners. Nearly all of the men working in the mines are foreigners, whose wives are unused to cooking American foods. The health of the men depends to a large extent on their having wholesome food, and the home-demonstration agents are teaching the women, with the aid of interpreters, what to buy and cook.

Order Lime and Fertilizers at Once.

There appears to be a disposition on the part of farmers, for one reason or another, to delay ordering fertilizers and lime. The Bureau of Soils of the United States Department of Agriculture calls attention to the fact that, unless lime is ordered early, farmers may have much difficulty in securing their requirements both because of the fact that lime plants are unable to store up supplies and because of the strain on transportation.

Somewhat the same situation exists as to fertilizers. The regional director of railways for the Southeastern district recently called attention to the fact that fertilizer movements are greatly delayed. Ordinarily, 40 per cent of the whole fertilizer tonnage, he says, has been shipped by February 10, but this year less than 15 per cent had moved by that date. The normal yearly movement is about 160,000 carloads and, at the date of the director's appeal, it was 50,000 cars short of what it should have been. "It is easy," he continues, "for you to see what I fear. A flood of business at the last moment can not be moved to the satisfaction of our patrons and complaints will follow."

It is apparent, therefore, that delay in ordering either fertilizers or lime may have serious results.

Corn Borer Quarantine Withheld.

A hearing to determine what is to be done with regard to quarantine of the territory in Massachusetts and New York infested by the European corn borer was held at the offices of the Federal Horticultural Board, United States Department of Agriculture, February 26. It was previously determined that the insect may infest, in addition to corn, many herbaceous plants, including such garden or flowering plants as celery, Swiss chard, green or string beans, beet tops, turnip tops, spinach, dahlias, gladiolas, and chrysanthemums. A great many truck growers and others who would be affected by the proposed quarantine against interstate shipment of such plants appeared at the hearing.

The State governments of Massachusetts and New York, it was brought out at the hearing, are anxious to do everything possible to eradicate or control the pest. State authorities are now making preparations for handling the situation by State quarantine and otherwise, including the passage of additional legislation deemed necessary. The Department of Agriculture has already established a provisional quarantine with respect to this corn borer in Massachusetts. Additional Federal quarantine action will depend on the extent of cooperation, if any, needed to supplement quarantine and other control operations conducted under State authority. The areas infested, both in Massachusetts and New York, are entirely within the State boundaries, and the efficient control promised by the States may eliminate the necessity for further Federal control of interstate traffic.

Stimulating Use of Dairy Products.

The Bureau of Markets of the Department of Agriculture announces that it is prepared to furnish local organizations complete plans for campaigns to stimulate the consumption of dairy products in cities. A campaign at Sedalia, Mo., was conducted in February through the cooperation of the chamber of commerce, the Women's Division of the Council of National Defense, the State college of agriculture and other local organizations. Last year campaigns conducted by the department to encourage the use of dairy products were held in Boston, Detroit, Des Moines, Minneapolis, and St. Paul. At Des Moines after a week's campaign the demand for milk became greater than dealers were able to meet. At another city a dealer who was marketing about 850 pounds of cottage cheese each week increased his sales to 850 pounds a day, and in other cases much skimmed milk that had been going to waste was converted into cottage cheese and found a ready market.

Reports Milk Prices in 43 States.

Monthly reports are now issued by the Bureau of Markets showing wholesale and retail prices of milk in over 100 cities in 43 States. The report for February shows retail prices for standard bottle milk delivered ranging between 11 and 20 cents a quart with the most usual prices 14 and 15 cents a quart. Prices paid producers per quart f. o. b. city varied from 6.4 to 12.7 cents a quart with the bulk of the milk ranging between 7 and 8 cents a quart. The February report carries a column showing the "dealers spread" in cents per quart on 3.5 per cent milk delivered to retail trade. It ranges from 4.4 cents to 11.5 cents.

"Poison Belts" for Japanese Beetles.

The Japanese beetle, a small insect that attacks a great variety of plants, has become established over an area of approximately 10,000 acres near Riverton, N. J. The United States Department of Agriculture in cooperation with the New Jersey Department of Agriculture is waging a campaign of eradication, or if eradication is impossible, of such control as to hold the insect within a limited territory.

The mature beetle feeds on the leaves of orchard trees and ornamental plants as well as a number of annual plants.

It shows a fondness for flowering plants, and is particularly destructive to roses. However, it is not fastidious in its tastes. It feeds voraciously on the foliage of smart weed.

In the control campaign poison belts have been established, one immediately outside the infested area and others at intervals farther back, somewhat like a defensive system of trenches in human warfare. The foliage of all vegetation in these belts is poisoned. Hand picking is resorted to, and the insects are collected by bushels.

The larva is a white grub that feeds on the roots of living plants and to some extent on decaying vegetation. The destruction of larvæ in the soil is undertaken by the use of insecticides and by plowing operations.

The great danger of the spread of the insect is in shipments of sweet corn. The beetle burrows into the ear and detection is difficult. All sweet corn shipped out of the infested area must undergo inspection, and any that is infected can not be shipped but must be canned or otherwise disposed of.

New Hemp Variety Makes Record Yield.

From a new variety of hemp known as the Chington, grown by the Office of Fiber Investigations, United States Department of Agriculture, at Yarrow Farms, near Washington, D. C., 7 ounces of seed were sent to a grower at Camp Nelson, Ky., for experimental purposes. This seed was planted in hills 4 feet apart each way on bottom land near the Kentucky River, and was adequate for sowing one-quarter of an acre. The resultant crop aggregated 620 pounds of clean hemp seed of excellent quality, a yield on the basis of 56 busheds and 16 pounds of hemp seed to the acre. This record crop is practically four times as great as the average yields which are harvested where one bushel of ordinary unselected hemp seed is planted to the acre. There are now abundant supplies available of hemp seed of improved strains such as the Chington and other varieties, and no seed from unselected stock should be planted during the coming season.

1919 to be Big Garden Year.

Home gardening is starting off this year in every section of the country with the momentum gained during the two gardening seasons in which the United States was at war. This is the conclusion drawn from reports to the garden specialists of the United States Department of Agriculture from garden leaders in most of the States. According to these reports gardening has spread to every element of the people and has become a fixed factor in city and suburban as well as rural life. With experience gained by amateur gardeners in past seasons and with gardens assuming a permanent rather than a temporary character, this year is expected to be the greatest year ever recorded in making waste land produce food.

States Help Tuberculosis Work.

Legislatures in 23 States that have convened recently are expected to appropriate nearly $2,000,000 for eradication of tuberculosis from live stock, according to reports to the Bureau of Animal Industry. Much of this money is expected to be appropriated for indemnifying owners for cattle destroyed because of tuberculosis, and in most cases carries the understanding that partial indemnity will be made by the Federal Government, according to a recent act of Congress. In States where it is necessary to change the laws relating to tuberculosis eradication in order to cooperate with the Federal Government and receive Federal assistance in indemnification, necessary changes are expected to be made. Dr. J. A. Kiernan, in charge of tuberculosis eradication work of the Bureau of Animal Industry, says that the great interest being shown by State legislatures is good evidence that the importance of tuberculosis eradication is realized and that Federal cooperation is appreciated.

Little Demand for American Seed.

Letters and cablegrams from the representatives of the United States Department of Agriculture who have been in Europe for two months do not indicate that there will be an early active demand in England for any of the seeds commonly exported by the United States, except meadow fescue seed. It is possible that Russia and a few of the other countries might need a considerable quantity of our seeds, but by the time transportation, monetary, and other difficulties clear up it is thought that European surpluses of various kinds of seeds gradually will filter into Russia and elsewhere, thereby leaving no appreciable opening for American seed.

Compulsory Forestry Advocated.

Compulsory practice of forestry on private timberlands, coupled with a liberal policy of public cooperation and assistance, was advocated by Henry S. Graves, Chief of the Forest Service, in a recent address before the New England Forestry Congress. This country is progressively destroying its forests, said Col. Graves, who also declared that the public should prohibit destructive methods of cutting that injure the community and the public at large.

Killing Cattle Ticks Early.

Reports to the Bureau of Animal Industry from all States infested by the cattle fever tick tell of excellent responses to the slogan, "Dip that tick in March." Many dipping vats were in active operation early in the month, while others were being prepared for dipping work not later than March 15. By dipping in March the Federal and State tick eradicators hope to kill millions of the parasites before they can multiply. Early dipping is one of the features of the 1919 campaign, which aims to break all records in amount of territory made tick-free.

Hog-Cholera Losses on Decline.

Since 1913, when the United States Department of Agriculture began work to control hog cholera, the dreaded disease has become less and less destructive each year. A force averaging 165 Federal veterinarians has been maintained, working in cooperation with State authorities in charge of quarantine and other regulatory measures necessary for the success of control work. During the fiscal year 1918 more than 5,500,000 hogs were inoculated with anti-hog-cholera serum, and more than 2,200 farms, found to be infected with cholera, were cleaned and disinfected under supervision of the department veterinarians.

Altogether, representatives of the department visited more than 15,000 farms to investigate reported outbreaks, to apply preventive measures, and to clean and disinfect premises. How great a menace hog cholera has been to the Nation's swine industry may be judged from the accepted estimate that 90 per cent of hogs lost from all ailments die from cholera. In 1918 the death rate of swine from disease was placed at 42.1 per thousand. Thus the loss was slightly above 4 per cent for the United States, the lowest on record, according to the department's figures.

HOW POULTRY PRICES RANGED

Turkeys brought to producers an average price of 23.9 cents a pound, live weight, October 15, 1918, and there was a monthly increase to 27.3 cents on January 15, 1919, as ascertained by the Bureau of Crop Estimates for the United States. The price of chickens was nearly stationary during this time, and it was lower than the turkey price by 1.7 cents in October, followed by increasing difference to 5.2 cents in January.

COMPULSORY FORESTRY URGED TO SAVE AMERICAN TIMBER

Chief Forester Tells Evils of Blind Assaults on Woodlands

Would Provide Public Cooperation to Assist Private Owners Preserve Forests for Benefit of Future Generations

The compulsory practice of forestry on private timberlands, coupled with a liberal policy of public cooperation and assistance, was advocated by Henry S. Graves, Chief of the United States Forest Service, in a recent address in Boston before the New England Forestry Congress.

"Our country is progressively destroying its forests," said Col. Graves. "The consequences are very far-reaching. The exhaustion of the forest is followed by the closing of industries, the steady increase of waste lands, the abandonment of farms that depended for their market on the lumber communities, and the impoverishment of many regions.

"No section of the country can afford to have a large part of its land an unproductive waste, with the loss of taxation value, of industries, and of population that would be supported if these lands were productive. No section can afford to be dependent for its supplies of wood products on another section from 1,000 to 3,000 miles away."

Southern Pine Going

The leaders of the southern pine industry, it was pointed out, say that the original supplies of pine in the South will be exhausted in 10 years, and that within five years not less than 3,000 mills will go out of existence.

"Already there is an acute problem of supplies for paper mills and for other industries in the East which use specialized material," said the Forester. Pacific coast timber is entering the eastern markets. This means that the price of home-grown timber has risen to a point making it possible to ship timber 3,000 miles in competition with it.

"Timberland owners have not recognized an obligation to prevent their properties from becoming a source of injury to the community. Even in organized fire protection the chief effort is confined to the stands of merchantable timber. The character of the forest problem is such as to require the participation and direction of the public. We are not going to meet the situation until the public takes hold of it.

Fire Protection Needed

"There should be compulsory fire protection of cut-over lands as well as standing timber. The public should prohibit destructive methods of cutting that injure the community and the public at large."

"At the same time," said Col. Graves, "there should be recognized a public obligation not to throw the entire burden on private owners through merely restrictive measures, but liberal action to aid owners in introducing forestry should be taken.

"The public should provide a sane system of taxation; it should cooperate in such problems as overproduction of lumber, land classification, colonization, problems of labor, technical questions relating to methods of practice, and other economic, industrial, and technical matters involved in a constructive program of forestry."

WARNS THAT FOOD CAN'T BE DRIED WITH WATERED STOCK

Dehydrating food can be made a successful commercial industry if the business is located where there is an abundant supply of fresh fruits and vegetables, and if sufficient technical skill is available to insure a high-grade product, say the specialists of the Bureau of Chemistry, United States Department of Agriculture, who are investigating the drying of foods on a commercial scale. They warn, however, that before capital is placed in such an enterprise the prospective purchaser of stock should be sure that the particular enterprise under consideration is based upon sound economic principles, and that the promoters are not putting water in the stock instead of taking it out of the food. In order to dry food, say the specialists, it is not necessary to get "soaked" with watered stock.

Drying food on a commercial scale received an impetus during the war, because of the demand of the War Department for large quantities of dried vegetables for overseas shipment. For several years the dried-fruit industry has been developed extensively in certain sections of the United States. The commercial drying of vegetables, however, never had been developed to any large extent in this country previous to the war. One of the chief obstacles in the way of the development of such an industry was due to disregard of the principles of drying cellular substances and to lack of sufficient technical skill to produce a product of uniform, standard quality. A steady market could not be created for a product which was of low and uncertain quality.

Experiments conducted by the Bureau of Chemistry have shown that when right methods are used in drying, a high-grade, palatable product of uniform quality can be made on a commercial scale. Some vegetables, when dried properly can be kept indefinitely, and after water is added they are restored to their original appearance and have their original flavor. They compare favorably in every way with the fresh vegetables.

The great savings in transportation facilities, in packing materials, in storage space, as a result of drying, are economic factors which insure the continuation of the drying industry after the close of the war, in the opinion of the department specialists. Just as the Civil War gave a great impetus to the canning industry, so it is believed the present war will aid in the permanent development of the drying industry.

The two things that are most likely to retard the development of the industry are poor products and fake promotion schemes.

The Bureau of Chemistry can furnish information on drying processes. Through a special committee of experts it is studying the commercial aspects of the business.

CURED MEATS INCREASE IN YEAR, SURVEY INDICATES

Cured meats were, in a Department of Agriculture survey made for January 1, 1919, reported by meat packers, storage establishments, and wholesale dealers as follows: Cured hams, bacon, and shoulders, 443,628,844 pounds; other salted and cured pork, 200,616,061 pounds; salted and cured beef, 99,495,438 pounds.

These figures represent the following percentages of the corresponding holdings on January 1, 1918: Cured hams, bacon, and shoulders, 130.8 per cent; other salted and cured pork, 106.5 per cent; salted and cured beef, 169.2 per cent.

Dried fish to the amount of 33,653,273 pounds was reported for January 1, 1919, by salt-fish packers, storage establishments, and wholesale dealers, and fish in brine to the amount of 62,208,112 pounds. These quantities are equal to 98.7 per cent and 137.6 per cent, respectively, of the stocks of these two commodities held by the same firms on January 1, 1918.

Help your country and yourself by buying war-savings stamps.

FROM SHORT-STAPLE COTTON TO BROAD-BACKED BEEVES

Change Going Forward in Advance of Southern Agriculture

With Cattle Tick Coming Under Control Animal Husbandry Becomes More Attractive; Packing Plants in Four Cities

Col. J. Stonington Blackwell, otherwise known in the South as Average Farmer, is metamorphosing from a cotton grower into a cattle feeder because of the helpful investigations in cattle feeding conducted by the United States Department of Agriculture in cooperation with the Alabama and Mississippi experiment stations. Sneak thieves in the form of overflows, fluctuating markets, unfavorable growing seasons, and the activities of Mr. Boll Weevil who preyed on cotton profits have made the homely business of animal husbandry look mighty attractive to Col. Blackwell, now that the ravages of the cattle tick are coming under control.

However, Col. J. Stonington and his neighbor planters, at the outset, were a little skeptical about buying pure-bred bulls, a trifle up in the air when it came to providing the cattle with better quarters and balanced rations, and downright panicky when it came to the construction of silos and the feeding of ensilage. But they have lived to learn and have developed into such apt pupils that, as a result of their efforts in putting Dixieland on the live-stock map, Natchez, Miss., Birmingham, Ala., Moultrie, Ga., and Jacksonville, Fla., at present are operating packing plants.

In Feedless Days Gone By

In the good old days when the native cattle made a big banquet off a lick and a promise, Col. Blackwell was accustomed to rough the few cattle he kept on cottonseed hulls, with feast day allowances of cottonseed meal to slick the coats and pad the shanks of the rustlers. However, the recent high prices of cottonseed hulls, the spread of diversified farming and the coming and conquering of the silo have effected a revolution which has matured the ex-cotton growers into spick-spanking stockmen.

Uncle Sam has been a prize tutor in educating southern planters and farmers along stock-raising lines. His most recent lesson, as contained in United States Department of Agriculture Bulletin 762, "A Comparison of Roughages for Fattening Steers in the South," deals with the efficiency of corn and sorghum silage and other roughage, such as cottonseed hulls, corn stover, and oat straw. Investigations were conducted for four years in the making of porterhouse steaks and prime ribs of beef. Good gains were produced economically by the use of cottonseed meal and silage, or cottonseed meal and silage supplemented with dry roughage, such as cottonseed hulls, corn stover or oat straw.

Another Medal for Silage

Uncle Sam shows that a ration of cottonseed meal and cottonseed hulls produces less rapid and more expensive gains in fattening steers than a feeding mixture in which good silage forms all or most of the roughage. If cottonseed hulls are available at a reasonable price, they can be used economically to supplement a ration composed chiefly of cottonseed meal and silage. The cattle that were fed cottonseed meal and a heavy feed of silage ate only a small quantity of any roughage, such as corn stover or straw, but the consumption of this roughage reduced the total amount of silage consumed.

The use of cheap, dry roughage for supplementing a silage ration exerts little effect on the rate or economy of grains, reports the Federal Department of Agriculture, as a result of its southern cattle-feeding work. However, when such feeds are available on the farm and are not needed for wintering stock or breeding animals, the department experts recommend their use as side dishes for the chow-time use of the beeves.

"Give silage its due," say the scientists, "as either corn or sorghum silage fed in generous quantity in combination with cottonseed meal or cake produces much more rapid and economical gains on steers than do such dry roughages as cowpea hay, straw, and corn stover when fed to add bulk and volume to the cotton crop by-products." Similarly it was ascertained that steers do best even in the warmer, southern climes where their feet are warm and dry and their bodies are snug and comfortable. Open-end sheds, sheltered feeding lots, and dry, well-bedded yards were profitable investments, as they influenced animal comfort and well-being, which in turn effected increased gains per unit of food.

The Long and Short of It

It is often more profitable under Dixie conditions with respect to the age and quality of the cattle to feed heavy rations over a short period than to feed lighter rations over a longer period. The conditions of the steers when placed in the feed lot and the market price are the chief factors to use as a basis for determining whether to employ the short or long feed. As a rule it is a safe policy for the southern stockman to prime his cattle with plenty of finish, as steers in the best market condition commanded the banner prices and returned the maximum profits during the period of these investigations.

Cattle which are sold on large margins usually bring good profits, even though the cost of finishing the feeding animals is high. A dependable and certain way of insuring satisfactory financial outcome of the beef-making operations is to buy the feeders at right prices or to raise the animals economically, chiefly on farm-grown feeds, such as silage, stover, straw, and pasture.

Taken as a whole, Uncle Sam's representatives conclude from their extensive investigations that the southern farmer can feed steers on cottonseed meal or cake and corn or sorghum silage, with or without other farm-grown roughage, and produce satisfactory gains at comparatively cheap cost, and can market well-finished steers for good prices if he is in a tick-free section. By so doing he not only utilizes his farm-grown crops but adds to his farm in the form of manure the fertilizing elements of the cottonseed meal fed, thus carrying out a system of diversified, permanent, and profitable farming.

Southern stockmen should read Bulletin 762. They will not regret it.

Pennsylvania Youths Learn In Clubs to Judge Live Stock

Forty-one live-stock judging contests were held in Pennsylvania during the past year as a part of the boys' and girls' club work, conducted by the United States Department of Agriculture and the State College of Agriculture. By means of them, hundreds of Pennsylvania boys and girls have learned to picked desirable farm animals. These judging coning contests are used as a means of educating the young people in live-stock work and raising the standard of stock owned in the State. Every young farmer who attended one of the contests went home with a higher ideal regarding the live stock he looked forward to owning in the future. Pure-bred animals are given for prizes, and those won by the Pennsylvania youngsters are now being used by the winners in starting pure-bred herds. Incidentally, many adult Pennsylvania farmers who were spectators at these junior stock-judging contests have learned, with the boys and girls, much about the good points of an animal.

Better than money because they earn money; buy a WAR-SAVINGS STAMP TO-DAY.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — MARCH 26, 1919 — No. 34

TO DIRECT BROADENED WORK IN FARM MANAGEMENT OFFICE

Dr. H. C. Taylor, of University of Wisconsin, Enters Federal Department

Plans Recommended by Committee of Experts to Be Set in Operation; New Chief Was Born on Iowa Farm

Dr. H. C. Taylor, head of the department of agricultural economics in the college of agriculture, University of Wisconsin, has been appointed by the Secretary of Agriculture as Chief of the Office of Farm Management, United States Department of Agriculture.

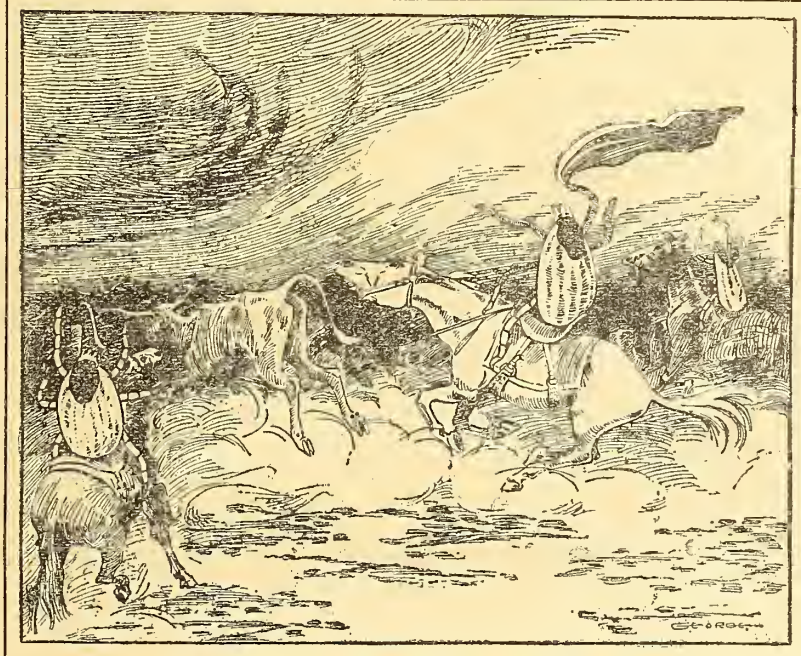
Dr. Taylor was a member of the committee, consisting of experts in farm management and agricultural economics from several agricultural colleges, which for the past two or three months, at the request of the Secretary, has been carefully studying the projects and activities of the department in farm management. This committee recently submitted its report. Its plans, which the Secretary has approved, will result in placing the work in the field of farm management and farm economics and especially the cost of production studies on a broader and more satisfactory basis. These plans can and will be set in operation, in large measure, under Dr. Taylor's direction, with existing authority and funds. The report of the committee will be published in the near future. It is summarized elsewhere in these columns.

Dr. Taylor, born on an Iowa farm in 1873, completed his common-school education in his home community. He attended Drake University, 1891–94; graduated from the Iowa Agricultural College in 1896, and received his doctor's degree from the University of Wisconsin in 1902. During the period of his training he specialized in economics, not only in this country but abroad. Dr. Taylor has served as head of the department of agricultural economics in the college of agriculture at Madison since 1908. He is one of the leading active members of the National Farm Management Association.

"Well Qualified for Task"

"Dr. Taylor has not only taught some of the strongest courses administered in agricultural economics, but he has carried on investigations which have attracted the attention of the agricultural people in all parts of the United States," said an official of the Department of Agriculture. "He has prepared many bulletins and articles which have meant much to the agricultural people in solving agricultural problems. In addition to his work in the university, he has lived on a farm and personally operated it in a successful way during the past eight years. Therefore, he comes to the de-

(Continued on page 14.)



THE CATTLE RUSTLERS OF TO-DAY—TICKS.

DRAWN FOR THE WEEKLY NEWS LETTER BY G. D. GEORGE.

EARLY CATTLE TICK CLEAN-UP DEPENDS ON WORK IN TEXAS

Federal Official Says Opposition Comes From Only a Few Men

"Dealers in Ticky Cattle and Few Big Cattle Owners Do Not Represent Great Body," Declares Eradication Chief

After declaring that what Texas does will decide when the United States will be free of the cattle-fever tick, Dr. R. A. Ramsay, chief of the tick eradication division of the Bureau of Animal Industry, United States Department of Agriculture, told the Texas Cattle Raisers' Association, in convention at Dallas, March 18, that the farmers and small cattle owners of Texas should not be blamed for the comparatively slow progress of tick eradication in that State.

"I am convinced," said Dr. Ramsay, "that the real opposition to tick eradication—the opposition that is delaying the day when Texas will be tick free—comes from a few men who make it a profitable business to deal here and at the stock yards in what are classed by the trade as 'southern or ticky cattle,' and from a few large owners of cattle."

Eyes of Country on Texas

Texas has done "a pretty fair job already" in cleaning out the tick, said Dr. Ramsay, having driven the cattle parasite from 36 per cent of the State—more than the total area of any other tick-infested State—but still has nearly three times as much infested and quarantined territory as any other State and nearly as much infested territory as in all the

other States put together. That is why, he said, "the eyes of the whole United States, so far as tick eradication is concerned, are on Texas."

Dr. Ramsay also told the cattlemen that Texas, in State and county funds, is spending only $2 for every dollar expended by the Federal Government for tick eradication, in contrast to $3 in Arkansas, $3.50 in Oklahoma, and $4 in Louisiana. He drew attention to the help given by these neighboring States during the time of droughts in Texas, when they allowed Texas cattle from the drought-stricken regions to enter their territory after only one dipping for ticks, taking on themselves the expense of dipping the cattle a second time. He expressed the opinion that "the difficulties encountered in securing these concessions in the time of a great emergency indicate very plainly that these States will not accept such cattle in the future unless they comply with all requirements."

"Great Majority" for Eradication

"What has already been accomplished in Texas," said Dr. Ramsay, "proves that the men who are retarding tick eradication do not speak for the great body. I am sure of my ground when I say that the great majority of cattlemen and farmers want the tick eliminated, but unfortunately they have not always made their desires sufficiently clear to their local governments. It is to their interest to do so.

"Louisiana is likely to become tick-free this year, Oklahoma and Arkansas should go 'into the white' in two years, and in three years there may be no tick-infested area even in Florida. The Bureau of Animal Industry believes the whole South is going to drive out the tick not later than 1923. We confidently hope that Texas is going to be 'on the band wagon,' and we look to you members of this association to see that Texas gets aboard."

AMEND PLANT QUARANTINE REGULATION

The quarantine governing the importation of nursery stock and other plants and seeds into the United States has been amended to permit the importation of lily bulbs, lily of the valley, narcissus, hyacinth, tulip, and crocus packed in sand, soil, or earth, provided such sand, soil, or earth has been previously sterilized in accordance with methods prescribed by the Federal Horticultural Board. Sterilization must be done under the supervision of an authorized inspector of the country of origin, who must certify to it. This provision is amendatory to regulation 3 of the rules and regulations supplemental to the notice of quarantine, which required that such bulbs when imported must be free from sand, soil, or earth. It was brought to the attention of the board, however, that dry earth is the only suitable material known for packing these bulbs, and experts of the Department of Agriculture advised that such material can be cheaply and satisfactorily sterilized by heat in such way as to involve no additional risk of introduction of dangerous plant pests.

A Velvet Bean That Does Not Vine; Bush Variety Deserves Wide Tests

Disadvantages of the ordinary varieties of velvet beans, in that their vining, twining nature makes it practically impossible to harvest the resultant forage as hay, are rectified in a new variety known as the "bush" or "bunch" velvet bean. It is of erect, upright growth and arises from a selection of the Alabama variety, first developed on the farm of a Georgia planter. This farmer carefully saved the seed from the crop raised during the 1915 season, which harvested 60 bushels, and he distributed it in his vicinity, so that at present the variety has been established on a large scale in that section of Georgia. It is noteworthy that wherever the bush variety has been grown it ultimately has replaced all other varieties of velvet beans. The United States Department of Agriculture is promoting its popularization.

The individual plants average about 3 feet in height, growing approximately as high as the ears on corn plants. The bean plants branch near the ground, most of the branches being short. Occasionally some are from 5 to 7 feet long, but show no inclination to twine over cornstalks. The pods are all produced near the base of the plant, but the stem is stiff enough to support the clusters so that few of them rest on the ground. In appearance the pods and seeds are exactly like the Alabama and Georgia varieties, the pods having the same ability to resist decay when they lie on the ground. The bush velvet bean matures in about the same period as the Alabama variety, but the yield is a little lower.

Nontwining Advantage

An outstanding feature which particularly appeals to farmers is that the plant does not twine on corn, and, therefore, does not tend to pull down the stalks. Hence, where it is grown in combination with corn for ensilage purposes, it is much easier to handle the two crops than has been possible where the ordinary twining varieties of velvet beans have been grown in combination with corn. In addition, the bunch velvet bean is especially valuable for planting in orange and other tree groves where any variety of forage crop which climbs trees is decidedly objectionable, particularly while the trees are young. This new bean may be used as a rest crop after the manner of cowpeas, as the absence of twining stems eliminates the common difficulty in mowing ordinary velvet beans.

Indications are that where the crop is used principally for soil improvement the Alabama and Georgia varieties are preferable, as they yield a large amount of green growth. Furthermore, where the entire crop of matured beans is to be gathered the bush velvet bean is perhaps not so desirable as the twining varieties, as the pods are all produced very near the ground and thus the labor involved in gathering them is increased.

Suggestions on Planting

The bush velvet bean should not be planted too early in localities to which it has been acclimated, but at about the same time as cotton, as the beans do not make a thrifty growth until the soil has become thoroughly warm. As a rule, 1 bushel of seed will plant 2 to 3 acres, the seeds being dropped 2 to 3 feet apart and covered the same as corn in rows which are 36 to 42 inches in width. The beans may be planted either alone or in the same rows with corn. It is customary after planting to cultivate the bush-bean crop the same as cowpeas.

In the opinion of specialists of the United States Department of Agriculture, bush velvet beans are worthy of extensive testing. The wide popularity achieved in the limited area where they are known indicates that they may become highly useful and particularly valuable for the special purposes mentioned. As this variety is a new one, the Department recommends that all farmers who give it a trial make provision to save their own seed, as for two or three years the seed will probably be scarce and high in price.

Careful experiment has demonstrated that the best method of growing tomatoes in the South is by pruning to one or two stems and tying them to stakes.

Of the more than 500 known varieties of the soy bean which have been grown on the Government testing farms, at present only about 15 are handled commercially by seed men.

Careful Nursing and Protection Needed by Trees Being Grown for Shelter Belt

After planting trees to form a shelter belt in the northern Great Plains area, it is necessary that they be cultivated to keep down all grass and weeds until the trees are well started and are large enough to shade the ground, say dry farming specialists of the United States Department of Agriculture. One summer's growth of Russian thistles or western wheat grass may kill a previously healthy shelter belt of two or three years' standing, they add. Artificial mulshing of shelter-belt trees with straw, manure, or any similar material is not recommended, nor is pruning, except to remove deadwood, and in cases where trees have made an abnormally low, bushy growth.

The trees should be cultivated with a one-horse cultivator until about the middle of August to keep down weeds, particularly the western wheat grass, often called "blue stem." This grass will form sod in one season of growth on newly broken ground, and if not removed as soon as it starts is very difficult to kill. If allowed to spread, plowing which is not the proper treatment for the shelter belt will be necessary. After cultivation is discontinued hand hoeing is necessary to control the Russian thistles, tumbling mustard, and other quick growing large weeds. These weeds not only use needed soil moisture, but cause further trouble by disseminating seed.

Artificial mulching may be harmful in many ways, such as furnishing harbors for mice, introducing weed seeds, and increasing danger from fires. When trees become too large and close together for cultivation, the falling leaves will form their own mulch, which is the natural forest condition under which the trees will best thrive.

Don't Prune All Trees

A thick, dense growth is the only proper method of growing a shelter belt, and this is best obtained by not pruning the trees. Unpruned trees furnish shade from the hot sun and dry wind, their bushy tops furnish better protection from sun scald, and they will soon shade the ground. Under exceptional conditions, however, pruning is justified. Dead wood, of course, should be removed. Young trees that have been frozen to the ground for a few years in succession will become too bushy at the base. To increase their height and to stimulate an upward growth it is necessary to cut the branches, except one at the ground close to the trunk. Allow the remaining branch to become the leader of the new trunk, and do not prune the branches that it sends out.

Killing Animal Pests

Jack rabbits are the worst animal pests with which the grower of trees in the northern Great Plains area has to contend. They especially prefer elm and ash, but will cut the poplar and willow branches which protrude from the snow in the winter. These destructive animals can be controlled by poisoned bait, which is also effective in killing mice and other rodents. Poisoned oats, poisoned alfalfa leaves and strychnine washes are best for this purpose. When poisoned bait is being used, care should be taken to fence out all stock, which is a good practice at all times when the trees are getting started, for the stock will often cause serious injury by eating the branches and leaves.

Fighting Insect Foes

In caring for the shelter belt it is often necessary to employ the same methods that are used by fruit growers in combating insect enemies. Spraying with lead arsenate will control the poplar beetles, which cause destructive results to the foliage and subsequent death of many kinds of trees used in shelter-belt plantings. To be most effective the spraying should be done when the leaves are about half grown, but if a heavy reappearance of the beetles occurs it will be necessary to repeat the treatment. The lead arsenate spray also controls the large green wormlike larvæ of certain moths which are common and very destructive to the foliage of poplars and box elders, and which sometimes appear in such numbers as to eat all the leaves on a young tree in a short time. Leaf miners, leaf-cutter bees, and blister beetles are also common though rarely serious enemies to shelter-belt trees. Poison sprays will not control them and no other means are known.

Control of Tree Diseases

Trees in this section have only a few serious diseases, among which are canker, which affects poplars, and a disease of willows, which turns the branches black. The first-named disease appears as a swelling on the side of the trunk or at a crotch. As it advances the center parts of the affected wood die and the bark breaks away, and if the canker girdles the tree it will die. The only safe course when canker appears is to root out the tree and burn it, or if noted in the earlier stages severe pruning should be practiced. Unless the branch on which the canker occurs is cut back for some distance below the outside swelling pruning does little good. The disease of willows begins at the tip of the branches and may be controlled by cutting the limbs back below the affected parts.

STOCKS OF HIDES AND SKINS

Stocks of hides and skins in the United States on December 31, 1918, are given by the Bureau of Markets in the first report on hides issued by the Department of Agriculture. Cattle hides, both domestic and foreign, amounted to 6,398,234 pieces; sheep and lamb skins totaled 14,132,229; pig skins, 260,461 pieces; and 1,440,961 pounds of strips. Horsehides, including fronts, butts, and shanks, amounted to 401,613 pieces; and calf and kip skins, 2,199,266 pieces.

Other skins included in the report are: Kangaroo and wallaby, 350,900 pieces; deer and elk, 241,147; goat, 7,043,039; kid, 329,780; and cabretta, 923,437 pieces. A total of 47,077 buffalo hides were reported in stock, of which 41,538 were heavy pieces. The report covers both domestic and foreign hides in raw stock, and represents holdings of 1,856 concerns. There were 673 other firms who held no raw stocks or whose holdings were included in reports from central offices.

TREATING INFESTED CHICKEN HOUSES

The first step necessary to destroy the mites is to get rid of the hiding places so far as possible. The roosts should be taken down and all unnecessary boards and boxes removed. In heavily infested houses the mites are to be found in all parts of the building, including the roof. Where they are less numerous the infestations usually are confined to the roosts and nests and the walls immediately adjacent. For small coops a hand atomizer will suffice for applying insecticides as sprays, but for larger houses a bucket pump, knapsack sprayer, or barrel pump is desirable. A rather coarse spray should be applied from all angles and thoroughly driven into the cracks. The floor also should be treated, as many mites fall to the floor when the roosts are being removed.

The production of the animal fats, exclusive of butter fat, equal to but 70 per cent of the vegetable oil output of the United States in 1912, rose in 1917 to nearly 80 per cent. Including butter, in 1912 the quantity of animal fats was approximately twice as great as that of vegetable oils, while in 1917 the production of the two classes of fats and oils was nearly the same.

POINTS OUT DANGER TO SOUTH IN GROWING TOO MUCH COTTON

Chief of Extension Work South Urges Safe Farming Program

Says Acreage Should Be Reduced, Not As a Level Cut, But that Every Farm May Become Self-Sustaining

"Cotton farmers and business men are in a critical situation in the spring of 1919," said Bradford Knapp, chief of the Office of Extension Work South, United States Department of Agriculture, in outlining at a recent meeting of extension forces some of the difficulties of farming in the South in 1919, and the importance of safe farming.

"If the South plants as large an acreage to cotton as in 1918 and has a good season resulting in a large crop, the possible danger to Southern prosperity can scarcely be overestimated," continued Mr. Knapp.

Safety in Food and Feed

"A well-balanced system of agriculture is the best answer to this problem, not only in 1919, but in any year in peace or in war. The safety and security of the Southern people depend greatly on the production of the food necessary for the people and the feed necessary for the increasing live stock."

Mr. Knapp pointed out that the exchange value of cotton in relation to the retail price of necessities of life was no different when cotton was worth 30 cents a pound in 1918 from what it was when cotton was worth 12 cents a pound in years before the war.

Every Farm Self-Sustaining

The home garden, corn as a basis of Southern food production, plenty of feed and forage for live stock, increased production of meat, milk, and eggs, with cotton as a strictly surplus crop, is the program strongly urged.

Mr. Knapp urged the reduction of cotton acreage, not so much by a level cut of a certain proportion of the acreage of every farm, as by converting every farm into a self-sustaining unit. He urged getting on to a cash basis instead of a credit basis, and selling the excess products of the farm to supply the living expenses.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for laboratory aid, motion-picture laboratory; for women only, on April 23, 1919. Two vacancies in the Division of Publications, Department of Agriculture, Washington, D. C., one at $720 and the other at $840 a year, will be filled from this examination. The duties of appointees will consist in the assembling, splicing, and repairing of motion-picture films, the staining of positives, and the printing of positive film. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for entomological laboratory assistant, for both men and women, on April 23 and 24, 1919. Several vacancies in the Bureau of Entomology, Department of Agriculture, for duty in Washington, D. C., and in the field, at $1,080 to $1,320 a year, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

SOME "OLIVE OILS" FRAUDS; READ LABELS WITH CARE

Several seizures have been made and a number of prosecutions instituted as a result of a campaign inaugurated by the officials charged with the enforcement of the Federal food and drugs act against the interstate shipment of adulterated and misbranded olive oil.

Consumers are advised by the Bureau of Chemistry, United States Department of Agriculture, to read carefully the labels of all containers offered to them as containing olive oil to determine whether the manufacturer actually claims that the product is olive oil or merely suggests it by misleading devices. Some of these deceptively labeled products are sold by itinerant peddlers.

Cottonseed oil, corn oil, peanut oil, soybean oil, and other vegetable oils are wholesome, palatable oils, but they should be bought under their own names at prices much lower than the prices at which olive oil is usually sold.

Misuse Vegetable Oils

Owing to the scarcity and high price of olive oil a number of dealers were putting on the market cottonseed, corn, and other vegetable oils labeled as olive oil. As the result of a large number of seizures of these products and prosecutions pending against the responsible parties, the practice has been generally discontinued. Some dealers, however, are endeavoring to continue to reap the large profits involved and hope to escape the penalties of the food and drugs act by so wording the labels of their product as to convey the impression to the consumer that the product is olive oil without stating directly on the label that it is olive oil.

Careful Scrutiny Advised

These products are commonly labeled as "salad oil" or "table oil," or some other indefinite kind of oil. On the labels are displayed conspicuous pictures of olive trees or maps of Italy or other devices intended to suggest olive oil. In some instances, the words "cottonseed oil" or "corn oil" are printed in very small type in an inconspicuous place on the label. A cursory reading of the label, such as is usually given by retail purchasers, would lead the average person to believe that the product was olive oil. Only the most careful scrutiny and exact reading will reveal that the product is not labeled olive oil, and, in fact, is not olive oil.

The practice of deceptive labeling, even though no directly false statements are made, is, in the opinion of the officials, a violation of the food and drugs act. Seizures are being made and prosecutions instituted to check also this form of deception and misbranding.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 15, 1919:

The Use of Wood for Fuel. Department Bulletin 753.

A Comparison of Roughages for Fattening Steers in the South. Department Bulletin 762.

Motor Transportation for Rural Districts. Department Bulletin 770.

The Field Testing of Copper-Spray Coatings. (Professional Paper.) Department Bulletin 785.

Muscadine Grapes. Farmers' Bulletin 709.

How to Control Billbugs Destructive to Cereal and Forage Crops. Farmers' Bulletin 1003.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

There are four important factors which must be given consideration by the beginner in the field of rural motor transportation. These four factors are: (1) The volume of farm products produced along the contemplated route; (2) the volume of miscellaneous hauling which could be secured to supplement regular loads; (3) competition from other carriers which would be encountered; (4) the character of the highways over which the trucks must run. It may safely be said that the features mentioned above will ultimately determine the success or failure of any rural route.

FIGHT AGAINST ANIMAL T. B. TO BE WAGED WITH VIGOR

Practically All Pure-Bred Cattle to Be Placed Under Supervision

Head of Federal Division Says Proper Measures Will Keep Tuberculosis Out of South; Denounces Traffic in Diseased Stock

The accredited-herd plan of eradicating animal tuberculosis will be carried on until practically all pure-bred herds of cattle in the United States are under State and Federal supervision, says Dr. J. A. Kiernan, chief of the tuberculosis eradicating division, Bureau of Animal Industry, United States Department of Agriculture.

When all pure-bred herds are under supervision, Dr. Kiernan said, it will be possible for cattle raisers to purchase animals from other States with the assurance that they will receive cattle that may be introduced with perfect safety so far as tuberculosis is concerned. In addition to the accredited-herd plan, the tuberculosis campaign will be carried on in circumscribed areas comprising one or more counties. The disease will be eliminated from cattle and swine in such areas, and the campaign will be extended until it takes in the entire State.

Live-Stock Men Must Help

"In order that the work may progress satisfactorily," said Dr. Kiernan, "it is necessary that live-stock owners cooperate to the fullest extent. The success of the movement for eradicating tuberculosis rests upon the live-stock owners of the country to a greater degree than on any other force; whenever they are ready and willing to get behind the work success is bound to follow."

Speaking of the development of the live-stock industry in the Southern States, Dr. Kiernan advised the greatest care in bringing in animals from other sections of the country and to make sure that they are free from tuberculosis. If proper precautions are taken, he said, the amount of animal tuberculosis in the Southern States may never be larger than it is now, and the disease may be eradicated in a comparatively short time.

Denounces Trade in Diseased Animals

"Trafficking in tuberculous animals has proved a great bane to the cattle industry," he said. "It possibly has relieved many owners of diseased animals for the time being, but it has heaped a great hardship upon those persons who have purchased such animals. The person who disposes of tuberculous animals for purposes other than immediate slaughter works a great injustice not only upon his neighbors and the live-stock industry, but just as much upon himself, because he, in turn, must go out into the market to purchase animals, and perhaps he will buy no better cattle with respect to health than those he has disposed of. It places in the channels of trade a constant supply of diseased animals which are disseminating the organisms of tuberculosis. There are instances where certain dealers have waxed fat in dealing with diseased animals, but in most instances such dealers have come to grief. They have been the worst enemies the live-stock industry ever had except the cattle rustler; and a man who will deliberately sell his neighbor a tuberculous animal will, if he thinks he can get away with it, steal his neighbor's animal. So there is not much difference between the trafficker in tuberculous animals and the cattle rustler. Both should be put out of business."

Conscientious Work Wins

Wherever and whenever owners have placed their herds under supervision for the eradication of tuberculosis and have followed the prescribed rules they have succeeded in getting rid of the disease, Dr. Kiernan said. Tuberculosis eradication work is being carried on in more than 40 States in cooperation with the State live-stock sanitary officials and the stock owners. Joint agreements between the State and the Bureau of Animal Industry, governing the application of the tuberculin test and the handling of the cattle, are forwarded to each owner interested in having his herd freed from tuberculosis or in having it accepted as officially accredited. Applications for the joint agreements may be made to the proper State sanitary officials or to the Bureau of Animal Industry, Washington, D. C.

EXPLAINS HOW TO PRODUCE RUST-RESISTANT ASPARAGUS

The Washington family of rust-resistant asparagus, developed by the United States Department of Agriculture, in cooperation with the Massachusetts Agricultural Experiment Station and other cooperators throughout the country as the result of 13 years of effort, is now well disseminated among interested growers and seedsmen, some of whom have available stocks of the new strains for sale. The pedigreed stock thus far distributed to growers is intended to form a basic stock for further breeding work. The Department of Agriculture announces that while it will continue to distribute the new strains, private enterprise must be looked to henceforth to furnish the general trade with its main supply of seeds and roots.

The department will not make general distributions of seed or roots of the new strains. The names of firms and individual growers who have stocks of the new strains may be obtained from the Bureau of Plant Industry, Department of Agriculture.

Growers Should Keep Records

Improved stocks thus far distributed are from matings of the male plant Washington with the female plants Martha and Mary and two other females as yet unnamed, R2–22 and R4–101. Pedigree numbers or combinations of unnamed females with Washington, it is pointed out, should be preserved by growers, as some of them will be named later, and these records will be valuable.

Cultural suggestions for the growing of the new strains include early sowing, clean seed bed, a small percentage of spinach or radish seeds to mark the row for cultivation before the asparagus seedlings show, the dropping of seed by hand five or six to the foot, cultivation between the rows with cultivators or scuffle hoes, and removal of weeds in the rows by hand. At the end of the season the tops should be allowed to die down to make a covering for holding snow. A layer of coarse hay or straw to prevent winter-killing should be put on after the ground has frozen.

How to Handle Seedlings

In digging seedlings great pains should be taken to preserve all the storage roots unbroken and unbruised. Trimming the roots down to a uniform length of 6 or 8 inches is strongly condemned. One-year-old roots are said to do better than two-year-old roots of the same stock. It has been found inadvisable to plant a permanent bed on ground occupied by seedlings the year before.

The ideal shoot should be about an inch in diameter, straight and not much flattened, of clean growth, with scales fitting closely in a tight bud.

The new pedigreed strains, to be available for seed production, must not be planted in fields near inferior varieties.

The grower who expects to sell seeds or roots is reminded that constant care is necessary to keep up a high standard.

To get the best returns from fields of the new strains for market purposes, they should be labeled and sold as Washington asparagus.

The Department of Agriculture has recently issued a circular giving information on the breeding and culture of the new rust-resistant strains of asparagus supplementary to that on general asparagus growing contained in Farmers' Bulletin 829.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

Grow-Your-Own-Feed Campaign On In Wisconsin County

"Grow your own feed" is the slogan adopted by the Washington County, Wis., agricultural agent for a campaign to increase the production of feed and forage crops, particularly alfalfa. The plan is to boost alfalfa for hay, and corn and soy beans for silage.

As a result of the campaign, farmers in the county have already placed orders for 12,000 pounds of common alfalfa seed, 2,000 pounds of hardy Grimm alfalfa, and 8,000 pounds of tall-growing soy beans. In spite of the fact that the rolling limestone lands of Washington County are especially adapted to the growing of alfalfa, last year there were 11,000 acres of timothy and clover, 3,500 acres of pure clover, 14,000 acres of straight timothy, and only 1,600 acres of alfalfa. The acreage this year probably will include at least 1,000 acres more of alfalfa and 1,500 acres of corn and soy beans for silage.

"Timothy and clover or timothy and alfalfa are all right," says one of the leaders of the campaign, "and clover and alfalfa are more than all right, but straight timothy doesn't work hard enough for the farmer."

TO TEST SEED ON BIG SCALE; INDIANA CAMPAIGN PLANNED

To test seed corn on a large scale is the aim of a campaign by Indiana county agents. Community testing is being emphasized. In several counties large testers, which will hold the kernels of from 2,000 to 5,000 ears, have been built. Large testers of this sort were used successfully last spring in Gibson County, Ind., more than 3,000 bushels of seed being tested in three big sand-box testers. The demand for testing was so great that all three outfits had to be enlarged, one of them being made to hold kernels from 14,000 instead of 10,000 ears.

A charge of 50 cents was made for each bushel tested, so that the cost of testing was only 7 or 8 cents an acre of seed used, as a bushel will plant six or seven acres. The men doing the testing received 40 cents a bushel for their labor, and the remaining 10 cents was used by the better farming association, which backed the work, to pay for the material and building of the tester.

State officials, in pointing out the advantages of large community testers, say that when large testers are used special arrangement may be made to keep a uniform temperature for the germination of the corn, which is almost impossible with small testers used in the average farm home. Also, the community testing does away with the trouble to which the tester at home has to go through, and the important task of seed testing is placed on a permanent basis.

OWN AND OPERATE LIME GRINDER

Forty members of the farm bureau in Greene County, Ind., have formed a company and purchased a grinder to prepare agricultural lime for their own use. Each man in the company owns one share of $25 par value, making a capital stock of $1,000. The purchase price of the grinder was $815 and the rest of the money will be used in operating the machine. They plan to grind limestone for themselves and if there is a surplus to sell it to their neighbors at the cost price plus a small profit to cover operating expenses.

BOOST SEED-OATS TREATMENT

County agents in Indiana are carrying on a State-wide campaign for treating seed oats with formaldehyde to prevent smut. The campaign will extend to every county in the State, and is in line with the general campaign that has been carried on by the United States Department of Agriculture and the State agricultural colleges during the last few years.

The leaders in the Indiana campaign point out that the increase in yield due to the treatment of formaldehyde ranges from 2 to 30 bushels an acre. These figures are based on demonstrations which have been conducted in Indiana and other States during the last five years. Practically every field of oats has more or less smut unless the seed is treated, and the only way to eliminate the disease and prevent the enormous loss which it causes is to treat seed every year.

The county agent has not only been a leader in outlining and promoting the agricultural program for his county to meet war needs last year, but he also assisted in all patriotic movements among the farmers in the county.

The motor truck as a medium for the carriage of farm products is now assuming a permanent place in the general scheme of transportation.

Cow-Testing Association Men Believe in Pure-Bred Sires

Evidence that cow-testing associations, being established in many parts of the country by the United States Department of Agriculture in cooperation with the State and local authorities, are big factors in building up better dairy herds, is given by the work of the Dodge County (Wis.) Cow-Testing Association.

Every one of the 26 members of this organization is a believer in the value of the pure-bred sire. With one exception, all members are owners or users of pure-bred sires, and this one, according to last reports, is in the market for a good pure-bred animal to head his herd. The Dodge County association has 16 cows in the register of production. To qualify for this honor a cow must produce 365 pounds of butterfat each year, an average of a pound a day. One member who has been using a pure-bred sire for several years has a grade herd so improved that six of his cows qualified for the register of production last year. All of his cows are producing from 300 to 365 pounds of butterfat annually.

Another member who has four "pound-a-day" cows says that the sire is the one factor determining success or failure in the building up of a herd. During March of last year this man's 16 cows produced an average of 50.1 pounds of butterfat, and during the following month 47.1 pounds of butterfat.

PURE-BRED BULL PROVES VALUE

More Than Triples Return from Business of Dairymen

A Sheboygan County, Wis., dairyman invested in a good pure-bred bull to head his herd, and as a result the returns from his business have more than tripled. He produces milk for a cheese factory, and in 1911 delivered 44,229 pounds, but he did not regard his profits as satisfactory. He decided that he was farming with too poor equipment, so he purchased a pure-bred bull to cross with his scrub cows. Last year from the same number of cows he delivered 161,988 pounds of milk.

Another dairyman in the same county some time ago was milking 26 cows and got 600 pounds of milk a day. He tested his herd and then sold 17 of his cows—all scrubs—for beef. His nine grade

cows are now producting the same amount of milk as his former herd of nearly twice that number. The owner is convinced that it pays to use only pure-bred bulls.

MORE SILOS FOR VIRGINIA

County Agents Work to Help Solve Cattle-Feeding Problem

"Build silos" is the slogan of demonstration agents in Virginia counties where the feeding of cattle is a problem. Last year 464 silos were built in the 50 counties where agents are located. A report from the agent in an eastern county tells about the first silo that was built in his section, and how the people drove from miles around to see it.

The agent in a southwestern county tells of a "silo building bee" at which the neighbors gathered and put up a 130-ton silo in half a day. The agent was asked to "boss the gang," and did it so successfully that he was called upon to repeat the operation as soon as possible on 40 other farms.

CULLING UNDESIRABLE BIRDS

By culling out undesirable birds from Missouri flocks last fall, poultry raisers in that State saved more than $177,000, according to estimates made by poultry specialists of the United States Department of Agriculture. When the culling campaign was at its height in one Missouri county, more than 300 farm flocks were culled in a single day. Such results would have been impossible without the local leader organization. In the work in Missouri the department poultry specialists worked in cooperation with the regular State extension forces, brought local leaders together in the different communities, and instructed them in culling so that they could go back to their respective localities and, during the week designed for their culling campaign, carry on the work among their neighbors. Some of the local leaders, through their personal efforts, were responsible for the culling of more than 20 flocks in the culling week.

PLAN CAMPAIGN AGAINST PESTS

A "council of war" against predatory animals and rodent pests was held in Denver, Colo., March 12 to 14. Present at this council were all inspectors in charge of the work of eradicating predatory animals in the West, with State leaders of the Bureau of Biological Survey, United States Department of Agriculture, who are working in cooperation with the Forest Service and State extension forces. E. W. Nelson, chief of the Bureau of Biological Survey, and Dr. A. K. Fisher, in charge of economic investigations, atteuded the conference as representatives of the Washington office. The conference discussed methods to increase efficiency and to standardize records and operations employed in the control of these enemies of the stockman and grain grower.

CURRANTS AND GOOSEBERRIES GROWN BEST IN NORTHEAST

Currants and gooseberries are valuable small fruits for many farmers and gardeners, but the area of the United States in which they can be grown with marked success is less than one-half of the country. The section most favorable for them is the northern half of the country and east of the one-hundredth meridian, which runs near the center of the Dakotas, Nebraska, aud Kansas.

Currants and gooseberries require a cool, moist climate, are injured by the long hot summers of the Southern States, except in the higher mountaiu altitudes, and do not succeed very well even in Missouri and Kansas. They are not adapted to the hot interior valleys of California, but are grown in the northern coast counties of that State and in the coast portions of Oregon and Washington. Planting may be done in late autumn or early spring.

Even in the States where currants and gooseberries grow best there is a limiting factor which cuts down their cultivation materially. They spread the white pine blister rust and it is necessary to eradicate currant and gooseberry plants already growing and to prevent new plantings wherever the white pine is an important forest tree and there is danger of the disease being spread to valuable forest areas. Farmers' Bulletin 1024, just issued by the United States Department of Agriculture, discusses the cultivation of currants and gooseberries in detail and gives a summary of State laws controlling them.

Another limiting factor is the currant maggot, for which there is no known means of control.

The amateur in the cultivation of these fruits, after finding that he is subject to none of the factors referred to, will get a product useful chiefly in making jams, jellies, preserves, and pies, rather than in the fresh state. Both fruits contaiu a large amount of pectin, which is necessary for jelly making. The currant is commonly considered the best of all fruits for making jelly, but comparatively few know that gooseberry jelly is nearly, if not quite, as good as currant jelly and may be made much more cheaply. Iu addition to numerous ways in which currants and gooseberries may be used, they are especially valuable for combining in jams with other fruits. They are also useful for unfermented juices, conserves, preserves, pastes, marmalades, spiced products, catsups, and for canning.

FARMERS PLACE LESS STRESS ON BAD POINTS OF TRACTORS

Advantages and Disadvantages Reported by Users in Dakotas

Time-Saving Feature Most Favored, with Ability to Do More Work and to Conserve Men and Money; Injurious to Moist Soil

Several hundred tractor owners in the Dakotas were asked these questions:

"What do you find to be the principal advantages of the tractor for farm work?"

"What are its principal disadvantages?"

The replies received have been summarized in Farmers' Bulletin 1035, just published by the Department of Agriculture.

Saving in time, making it possible to cover the desired acreage within the proper season, is put first among the advantages by a large percentage of the farmers.

Work in Hot Weather

Other advantages mentioned are:

Ability to do thorough work, especially in hot weather, when horses are at a disadvantage.

Saving in man labor, doing away with more or less hired labor and enabling one man to farm a larger acreage than he can with horses.

Economy.

This last advantage is mentioned by a larger percentage of Dakota farmers than of farmers in other States where similar investigations of the tractor have been made. This is doubtless because the cropping system followed in the Dakotas is such that the tractor can be used to advantage for more of the farm work than in most other parts of the country.

Difficulties Mentioned

The principal disadvantage of the tractor, according to the reports made by these farmers, is its injurious effect on moist soil. This difficulty is a serious one in districts where the soil is heavy and where it is necessary to do a considerable amount of work in early spring.

Difficulty of operation seems to rank next as a disadvantage. A large percentage of farmers emphasize it. Other disadvantages mentioned are expense of operation, undue increase in investmeut, and delays on account of engine trouble.

In comparing the reports upon which this bulletin is based, with those obtained from tractor owners in various parts of the corn belt several years ago, it appears that less stress is laid upon the disadvantages of the tractor in the recent reports than in the older ones.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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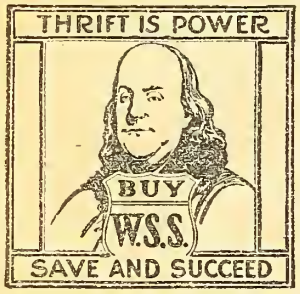

WHEAT INSPECTION SHOWS UNIFORMITY AT MARKETS

Of 2,018 cars of wheat shipped from four Western markets to Baltimore and graded by licensed inspectors under Federal standards, 1,820 cars, or 90.1 per cent, were graded the same at Baltimore as at point of shipment, according to a recent report of the Bureau of Markets, United States Department of Agriculture.

A recent shipment of 102 cars of wheat, inspected at St. Louis by a licensed inspector, was given the same grades when again inspected by a licensed inspector at Baltimore.

A lot of 400 cars of wheat inspected out of Chicago by licensed inspectors showed 345 cars with grades assigned in Chicago in no way changed by inspection in Baltimore. Of the remaining 55 cars the grade was changed on 33, while on 22 cars only the dockage was changed. In another lot of 1,034 cars from Chicago, 927, or 89.5 per cent, were not changed by the Baltimore inspection. Of the 107 that were changed 39 were because of the class of wheat, 42 had the grade raised and 19 were lowered. On 7 the dockage was changed.

In a shipment of 79 cars from Milwaukee 59 were unchanged by the Baltimore inspection, while of the 20 cars that were changed 7 were because of difference in grade and 10 because of dockage.

Minneapolis shipped 403 of the 2,018 cars reported on at Baltimore, and of the 403 cars 387, or 96 per cent, were unchanged by the Baltimore inspection. One car in this lot was changed on grade and 15 on dockage.

Results Summarized

Summarized, the comparative results of the inspection between the several markets, including the previously reported shipment of 102 cars of wheat from St. Louis, were as follows, comparisons being between point of shipment and inspection at Baltimore:

From—	Cars.	No change, cars.	Per cent.
St. Louis	102	102	100.0
Chicago	400	345	86.4
Do	1,034	927	89.5
Milwaukee	79	59	74.3
Minneapolis	403	387	96.3
Total	2,108	1,820	.....
Average percentage of uniformity	.....	.....	90.1

DIRECT APPEALS ALLOWED IN U. S. GRAIN INSPECTION

Changes effective immediately in the regulations under the United States grain standards act, announced by the Secretary of Agriculture, provide for direct appeals from district supervisor's grading, and in urgent cases from a licensed inspector's grading, to the final board of review at Chicago. They simplify the procedure for taking appeals and permit telegraphic notification of the grade assigned by the final board to all persons interested in the shipment of the grain.

Rules for Appeals

Appeals can now be entertained by supervisors until the close of the next business day following the day of inspection. "Superappeals" to the final board may also be taken within the same time following the issuance of the supervisor's grade memorandum. Grain inspectors are prohibited, under the revised regulations, from preventing any person from appealing the inspection to the Federal supervisor, and they now are required to show in their certificates the reason for grading grain lower than No. 1. It is no longer necessary for shippers to report to the Secretary their shipments of interstate grain not inspected because it moves between points where no inspectors are located. These modifications follow changes made by the Chief of the Bureau of Markets in the organization of Federal grain supervision, which include the moving of the inspection-efficiency project from Washington to Chicago.

Other Changes Effective July 1

Effective July 1, and permissive before that date when the requirements of the new regulation are met, grain dealers who reconsign cars out of a market not later than the second business day after the day of inspection are not required to secure a new inspection certificate for the shipment if the identity of the grain is preserved in the car. Inspectors must furnish copies of all their certificates to the Federal grain superivsor instead of the daily reports as heretofore.

These changes have been published by the United States Department of Agriculture as amendment No. 8 to the regulations of the Secretary.

SHOWS STRIKING CHANGES IN LIVE-STOCK VALUES

Comparative prices received by farmers and range men for lambs and mature sheep from 1913 to 1919 indicate growing demand for ewes for breeding purposes. If the average price of ewes throughout the United States, January 1, 1913, is placed at 100, the similar price is 312 in 1919. During the same period the price of lambs increased from 100 to 283; of wethers, to 280; and of rams, to 250. These comments are based on prices ascertained by the Bureau of Crop Estimates.

Calves gained in average price during this period a little more than mature cattle did; from 100, calves advanced to 168 and mature cattle to 165.5, and perhaps the stronger movement for calves reflected a disposition to build up herds.

On the other hand, horse prices declined in the average for the United States, although in the South the price movement was upward, on account of the demand for "Southern chunks" in that region. This may have combined with war demand to retard the fall of the national average price of mature horses below that of horse colts. For mature horses the decline was from 100 to 89, and for horse colts to 87.

The mule is the chief draft animal of the South, and this fact, joined perhaps by war demand, gave mature mules a gain in relative price from 100 to 111, while mule colts ended the period where they began, at 100.

It must be remembered that two of the principal advantages of the motor truck, namely, lessened handling of goods in transit and speedier transfer, are lost if satisfactory collection and delivery arrangements are not perfected.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Massachusetts First to Have Club Leader in Every County

A full-time leader in boys' and girls' club work in every county is the goal toward which many States are working. Massachusetts is the first to make this hope a reality. In every one of the 14 counties of the Bay State this coming year there will be a county leader to direct and coordinate the work done by the members of the boys' and girls' clubs, under the supervision of the United States Department of Agriculture and the State agricultural college at Amherst. In addition, a number of farm bureaus in the State have employed from one to twenty assistants to aid the county club leaders by taking charge of districts or sections of the counties.

SUCCESS IN POULTRY WORK WON BY MISSISSIPPI GIRL

All poultry club members, especially girl members, should receive encouragement and inspiration from the record made by Lelia Sorrels, a Panola County (Miss.) poultry club girl. Her experience demonstrates the wide possibilities for poultry club girls paying their way through school, making worthwhile trips, purchasing their clothes, and having spending money for other purposes. With an original investment of $17.50 for a pen of Barred Plymouth Rocks, this girl in one season—her first year in poultry club work—made a net profit of $370.50.

According to her own story she bought her original stock just a few days before Christmas in 1917, giving the local bank a note for $17.50. Her birds began to lay a month later. From January 25 to October 17 the original pen of pullets laid 650 eggs.

The first nine eggs she received from the flock were used as a sitting, from which were hatched and raised seven chicks. From these she selected her chickens which later took prizes at the tri-State and county fairs. From her first 100 eggs set she hatched 92 chickens. From the next 125 eggs set 110 chickens were hatched. During the season she raised 170 chickens.

According to Lelia, these results were not obtained without work and some hard luck. For example, a mink—probably celebrating Independence Day—visited the flock on the night of July 4 and killed 12 of the biggest chickens. Hawks in the neighborhood seemed to have a fondness for her chicks, and carried off their share.

Last September Lelia sent two pens of her chickens to the tri-State fair, where they won first and second prizes. The following month she exhibited them at the local county fair, and won first prize, which consisted of $20, and which was invested in war savings stamps. She now has a flock of 50 selected pullets and eight cockerels, in addition to her original pen.

In spite of the losses from the mink and all charges, this club member made a good profit. All the grain fed came from her father's farm, but was charged at market prices, the total cost of the feed amounting to $40. The cost of the original chickens, interest and express, brought the expenses of the season to $59.50. From the sale of sittings of eggs, chickens sold, prizes, and value of stock on hand, a total of $430 is credited to her work. When expenses are deducted, there is a total net profit for one year of poultry-club work—and that her first year—of $370.50.

BOYS GET FARM "CLOSE-UP"

A truck load of 19 boys, agricultural students of the Merryville (La.) high school, set out recently with their teacher to study farming at first hand. The agricultural agent of Beauregard Parish, C. C. Chapman, acted as guide and took the boys to farms where registered hogs and cattle were raised. Methods of feeding and management were studied, types considered, crops for feed investigated, and the boys went home with their notebooks full of data to be discussed in class later.

So successful was the trip that the agricultural agent believes this kind of thing should be encouraged.

"These boys will be farming for themselves in a few years," he says, "and if they are taught how to raise good stock and given the right information now they will put in good blooded animals when they start farming."

The boys' and girls' clubs are stimulating farm children to enter the agricultural college to continue their agricultural training. In one State 218 club boys entered the agricultural college in 12 months.

Girl Takes Championship in State Baby-Beef Clubs

When Uncle Sam issued a call last year through the United States Department of Agriculture for an increase in food production, Mildred Oelke, a Minnesota girl, wanted to do her bit, so she entered a local baby-beef club and began feeding a 6-months-old Hereford calf her father had given her. Her efforts were well rewarded, for she won the State championship honors of the baby-beef clubs.

Her father, giving every encouragement, supplied a stall in the barn for the calf and supplied feed and pasture. The girl gave the calf a ration of oats, shelled corn, corn silage, and alfalfa hay, and on this the animal made a gain of 2 pounds a day. By July a new crop of alfalfa became available, and the animal made daily gains of 3 pounds. Mildred bought thrift stamps with the money she received from her club work.

BUSY BEES WITH BUSY BOYS OR GIRLS MEAN MUCH HONEY

Bee raising by boys and girls received special encouragement during the past year from the Department of Agriculture and the State agricultural colleges because the honey produced by the club members' colonies aided materially in relieving the sugar shortage. Plenty of cane sugar is in sight now, but the young people seem to have no intention of ceasing in their efforts to produce honey. They and their families have acquired a taste for the delicacy, and hot biscuits minus honey don't taste the same any more. Then, too, there is a ready sale at a good price for all the surplus honey the club members can produce.

Lyon County, Kans., in 1917 had only 12 club members. In 1918 this number was increased to 50. The county organization has been divided into standard clubs each with a membership of five or more. The parents cooperate with the young people in the study of modern methods and plans for bee raising. The membership consists entirely of children who come from homes where bees had been kept by the "Let Alone" plan.

Only comb honey had been produced heretofore, as little had been known of extracted honey or how to manage colonies producing it.

The parents of all club members were willing to secure modern equipment for the children and to move the bees from old crooked combs in poor boxes and hives to modern 10-frame hives. When the colonies commenced to produce well, the club members united in the purchase of a complete extracting outfit.

With honey selling from 20 to 30 cents a pound in home markets, keeping bees is a business which brings boys or girls fair incomes without the expenditure of much work or time.

Two of the largest producers in the Lyon County Club were boys of 17. One club member with seven colonies produced over 500 pounds in the 1918 season. The other, with 15 colonies, took from his hives 858 pounds. With an initial investment of $15, one of the smallest boys in the club work in the county, at extracting time found 100 pounds in his contest hive and 60 pounds in the other. A third member cleared $40 from the season's work, besides supplying the family table.

Given a good honey year in 1919, with an increase in colonies which they now possess, the boys and girls in the club work plan to put beekeeping on the map in Lyon County as one of its important industries.

FEW AND FAR BETWEEN, BUT NEW MEXICO CLUBS SUCCEED

New Mexico's rural population is so scattered that the organization of community projects is difficult. Ten counties have a rural population of less than two a square mile, and 18 have from two to six people a square mile. In spite of distances, the boys and girls there are as much interested in club work as those living in more thickly populated sections. The parents appreciate what these community projects mean to their children and make many sacrifices in order that the youngsters may attend the meetings.

An Otero County mother last summer was so anxious to have her little boy and girl join a club that she took them 3 miles afoot through the mountains to the meeting. The third child was too small to be left at home or to walk. She was carried by the mother and the other two children, turn about, over the 3 miles of mountain road.

Club work was completed by 3,087 club members of New Mexico in 1918. They raised products to the value of $92,696.31 at a cost of $33,269.47, with a net profit of $59,436.84. This does not include the value of the products raised by 2,500 other club members who did not complete their work and obtained no credit.

ARIZONA CLUBS PRODUCE PROFITS

Their Work Not Limited Solely to Emergency Food Production

Five of the Arizona boys' and girls' club projects—canning, cow testing, cotton growing, gardening, and poultry raising—last year yielded products valued at $23,532.22, of which $14,055.35 was net profit. In addition to the projects named, the State leaders organized 11 boys' and girls' clubs known as "Liberty Food Clubs," which carried on special work to meet immediate needs of the war program.

The members raised gardens, canned and dried fruits, made garments for the Red Cross and Belgian Relief committees, prepared food and garments for needy members of the families of soldiers, and in a general way looked after home odds and ends of work in connection with the war.

The members also assisted in the Liberty Loan drives, War-Savings Stamps sales, and studied first aid with a view to volunteer service in case it was necessary. This special war project was received with great interest, and illustrates the versatility of the boys' and girls' club work.

GARDENS SUPPORT ORPHAN

An Armenian orphan is being supported this year by a boys' and girls' garden club in Washoe County, Nev. The money for the purpose was made by selling fruit and vegetables raised in the club members irrigated gardens last year. These junior sagebrushers fought ground squirrels, jack rabbits, aphids, and cabbage worms all summer while their older brothers were fighting across the water. In the end they, too, "licked" the enemy and had for their reward thrifty gardens full of good things to eat and sell.

The amount of garden produce which this Washoe County club sold was sufficient to keep one Armenian orphan for a year and the club members decided to devote it to that purpose. The Nevada boys' and girls' clubs, organized by the Department of Agriculture and the State agricultural college, are in a thriving condition, despite great distances between communities.

CALF GAINS 100 POUNDS IN MONTH

Few calf club boys have demonstrated their ability to make their calves put on weight as has Charles Hendry, a member of the Newton County (Ind.) calf club. He has a pure-bred Hereford calf which gained an even 100 pounds in January, or 3.2 pounds a day. The calf was fed a ration of corn, oats, barley, oil cake, hay, and silage, and the feed bill for the 100 pounds gained was $6.09.

TO COLLEGE ON CLUB MONEY

The good results of boys' and girls' club work does not stop with the end of the contest nor in the sale of the produce raised by the club members. In fact, the work done in the clubs is in many cases only the beginning or the start on the road to bigger things and greater success. In Avoyelles Parish, La., one cotton club member last year not only learned some valuable lessons in cooperation, business methods, and in the growing of cotton, but the two tons of selected cotton seed he raised are being sold through the help of the local county agent and the proceeds will be used in paying the boy's expenses in college.

BOYS SHOW PROFITS IN PIGS

Junior Farmers Prove to Fathers That Pork Raising Pays

Farmers in Contra Costa County, Calif., in the past have not raised pigs. When the Government asked last year for increased pork production in every section, difficulty was found in getting farmers interested, for they maintained that pig raising in their part of the country could be conducted only at a loss. The county farm bureau directors then decided to appeal to the boys and girls who belonged to the clubs organized by the Department of Agriculture and the State college. The invitation was accepted enthusiastically, and with the assistance of the leader, seven pig clubs with a total membership of 42 were organized in the county. Each member pledged himself to raise at least two hogs. Through this effort of the junior farmers, 42 demonstrations of better stock, better feeding, care, and management, with complete records to back up their success, were conducted on 42 farms in the county, and fathers have been shown that pig raising can be made to pay.

GOOD WORK BY SMALL-TOWN CLUB

The State prize for the best exhibit of garments made in Missouri by a girls' club organized by the United States Department of Agriculture and the State agricultural college, went in 1918 to a club from a small town in Boone County. Not only that, but from the same little village of Rocheport, with a population

of 434, came the girl who last year won the State championship. The sewing-club work in Rocheport is a permanent year-round organization. Each year the club has increased its membership and has carried away many premiums in the State contests. From simple sewing the girls have progressed steadily until now they make suits and dresses which are prize winners. Club work has put this small town on the map in the eyes of the entire State and has given the girls living in it an opportunity to learn and demonstrate good garment-making practices.

FILIPINO YOUTHS LIKE CLUB WORK

Children in the Philippine Islands are taking up with enthusiasm club work similar to that organized by the United States Department of Agriculture. It is reported that 28,467 boys and girls in the Province of Pangasinan alone, last year, were in the various boys' and girls' clubs. Various kinds of club work are represented in the Islands, but the clubs which have the largest enrollment are those devoted to gardening, cooking, and sewing. The work has been growing steadily since it was started several years ago. Efforts are being made to make 1919 the banner year.

SWINE RULES LESS STRINGENT

Amended regulations issued by the Bureau of Animal Industry, United States Department of Agriculture, permit the importation from Canada of swine that have been immunized by simultaneous inoculation with anti-hog-cholera serum and hog-cholera virus, and that for 60 days immediately preceding shipment were kept on premises in which hog cholera and swine plague did not exist. It is also required that the swine after being immunized shall be disinfected with approved preparations. For all other swine it is required, as under previous regulations, that they must have been kept for six months on premises not nearer than 5 miles to premises infected by swine plague or hog cholera. Certificates covering these points are required from Canadian official veterinarians.

In the United States the yellow unbleached palm oil is used very largely in the tin-plate industry. So far it is almost the only substance which has been found satisfactory as a flux on the discharge side of the pots of melted tin through which the sheet-iron plates are passed to receive their coats of tin. Recent experiments with hydrogenated cottonseed oil, however, indicate that our tin-plate industry will be independent of this foreign controlled oil.

FLOWER BREEDERS SEEKING ALL-AMERICAN EASTER LILIES

Department Strives to Establish Domestic Bulb Production

Stock Discarded by Florists Produce Blooms Year after Year; No Reason Seen for Importing Indefinitely

When the Easter lilies bloom this spring at the Government experimental farms at Arlington, Va., across the Potomac River from the National Capital, the flower breeders of the United States Department of Agriculture expect they will have taken one more successful step toward proving that lily bulbs may be produced in this country, and that there is no good reason why Americans should be entirely dependent upon Japan and Bermuda for these stocks.

Grow Discarded Bulbs

The lots now flowering show that florists need not follow their custom of discarding bulbs that have produced flowers only one year. As one way of proving that bulbs do not lose their vigor and usefulness through one year's production, the Department of Agriculture men right now are flowering bulbs that florists always throw away. And they are growing them outdoors in the latitude of Washington—a procedure that has been demonstrated feasible. Florists have been skeptical about the use of bulbs year after year, because of their experiences with disease in imported stocks, but the Government men say that with care in handling there should be no more difficulty from diseases in the lily than in a score of other plants, provided the stocks are clean to start with.

"It should be noted," they say, "that a seed generation leaves the diseases behind—for how long will depend to a very large extent upon the conditions under which the plants are handled. No disease has yet appeared in our stocks."

The Government florists also are working to show commercial florists that they may produce their own bulbs of superior merit in one year's time from seed.

Much Money Goes Abroad

An important reason why Easter lily bulbs that flower in America should be grown in America is seen in the fact that importations of all bulbous stocks have ranged around a value of $2,000,000 a year, and of this amount a large share has gone for Easter lily bulbs.

The Government work in this field has not gone far enough yet to justify public exhibitions of these stocks, but it is hoped that within a few years an "all-American" Easter lily show may be arranged as a final proof that lily bulbs may be produced in America just as well as in any other country.

STANDARD GRADES FOR OATS TAKES EFFECT ON JUNE 16

Official standards for oats under the United States grain standards act have been established by the Secretary of Agriculture, effective June 16, 1919, when the new crop movement begins, according to announcement of the Bureau of Markets. After that time all oats moving in interstate commerce will be graded according to these Federal standards by licensed inspectors, whose work will be supervised by the Department of Agriculture, as in the case of official grain standards for wheat and shelled corn.

The new standards for oats provide for four numbered grades and a sample grade, the factors used for grading being: Test weight per bushel; minimum percentages for sound cultivated oats; and minimum requirements for heat-damaged (oats or other grains), foreign material, wild oats, and other colors, cultivated and wild oats. No provision is made in the new standards for dockage, but it is said to be not at all unlikely that they will be placed on a dockage basis at some future date.

The new standards follow closely the tentative standards for oats published in Service and Regulatory Announcement No. 45, which had the general approval of the grain industry.

The method of pressing American cottonseed oil is typical of the way hot-pressed oils are made, and the machinery and processes used in the production of this oil in the United States are superior to those of any other country. Plants of American design and construction are in operation in Europe, Asia Minor, India, and China.

Too many motor-truck routes have been started where a good one-way business was secured and the operator felt justified in returning with empty trucks. It is unsafe to generalize, but it may be definitely stated at this point that practically no route has ever been successful which has depended for its existence on a one-way load.

Although American peanut oil was an almost unknown product before the great war, in 1917 it ranked third in the vegetable oils made from home-grown products.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Food-Saving Lesson Remains.

The "gospel of the clean plate" was preached so thoroughly during the war that youngsters in the United States still have a guilty conscience if they waste food. The home demonstration agents sent out by the United States Department of Agriculture and the State colleges emphasized in their talks last year the need of conserving food. In Washington Parish, La., a little girl recently took more food on her plate than she could eat. Valiantly she strove for a clean plate, in accordance with the teachings of the home demonstration agent in that parish, but in the end failed. Thereupon she folded her hands, closed her eyes, and said, "Oh, Lord, please don't let Mr. Hoover or Miss Wolff hear of this. I want to go to heaven if I've got to go any place."

Urges Equipment for Milk Analysis.

A letter has been sent by the Dairy Division of the United States Department of Agriculture to 1,500 health officers in cities having over 5,000 population urging the city governments to supply the health officers with proper laboratory equipment so they can adequately guard the city milk supply. A health department without a laboratory equipment is as helpless as a soldier without arms, says the letter. A city government has no right to hold its health department responsible for the health of the community unless it has provided the department with the equipment necessary to wage the fight against disease.

The work of supervising the safety, cleanliness, and purity of its city milk supply is one of the most important duties of the modern health department. Bacteria, dirt, added water, and preservatives in milk can not be determined without chemical and bacteriological apparatus. The letter gives a list of the equipment necessary to furnish a laboratory for milk analysis.

Scholarships Result from Club Work.

The Legislature of Oklahoma has just passed a law creating two scholarships at the Oklahoma Agricultural College for each county in the State. The bill as originally drafted provided that applicants for scholarships must be members of boys' and girls' clubs in agricultural extension work. This provision was later eliminated. The examination for applicants, however, is such that only those who have received a training in agriculture equivalent to that given in the cooperative club work can hope to pass. Thus the county farm demonstration agents and home demonstration agents become head masters of the preparatory work in which boys and girls are trained for entrance to the State agricultural college on scholarships. The sentiment that resulted in the law has been a direct outgrowth of the cooperative extension work of the United States Department of Agriculture and the Oklahoma Agricultural College.

The scholarships are available to both young men and young women without discrimination as to subjects. That is, girls are not required to take an examination in domestic science, but may be examined in agriculture, as many of them very likely will. For scholarships heretofore given by bankers and others in Oklahoma, girls have won over the young men applicants in agricultural examinations.

Less Trouble with Tractors.

It takes about 2½ gallons of fuel an acre to run a tractor for plowing in the Dakotas, according to reports from several hundred farmers received by the United States Department of Agriculture. These reports, summarized in Farmers' Bulletin 1035, cover 2, 3, 4, and 5 plow tractors of various makes.

Slight differences in fuel consumption are found between machines of different makes, and there is usually a slightly lower consumption where gasoline is used than were kerosene is used. These differences, however, are so small that the average of 2½ gallons may be taken as coming very close to the actual acre consumption for any type or size of machine.

The more recent reports received in this regard indicate that farmers are having much less trouble than formerly in handling kerosene-burning tractors. Nearly two-thirds of the tractors on the Dakota farms reporting burn kerosene, and the results are apparently satisfactory, particularly in view of the fact that the present price of kerosene is but half that of gasoline. However, the advantage of gasoline in ease of operation and in the additional assurance it gives that the engine will keep running steadily makes many men prefer the more expensive fuel.

Bush Velvet Bean a New Variety.

The bush velvet bean, a selection from the Alabama variety now being produced on a commercial scale in Georgia, is being distributed in trial lots by the United States Department of Agriculture. This differs from all other velvet beans in cultivation, as it is a bunch bean instead of a vining variety. It grows to an average height of about 3 feet. It makes rather less growth than either the Alabama or Georgia varieties, while its character of growth increases the difficulty of harvesting seed. The amount of herbage is somewhat less than the average production of the velvet bean family.

The special advantage of the bush velvet bean is that it does not twine on corn and hence does not tend to pull down the stalks, while it is also valuable for planting in orange and other fruit-tree groves where a nonvining bean is desired. Like cowpeas, this bush bean may also be harvested as hay, as the absence of twining stems eliminates the common difficulty which occurs in mowing the ordinary twining varieties of velvet beans. Bush beans are planted about the same time as cotton, when the soil is thoroughly warm, the seeds being dropped 2 or 3 feet apart in rows 3 to 3½ feet in width and covered the same as corn. It is customary to plant the beans either alone or in the same rows with the corn. One bushel of seed will plant 2 to 3 acres. After planting, the crop should be cultivated about like cowpeas.

Prospects Good for Sugar-Beet Crop.

Sugar-beet growers are contracting their 1919 crop of beets for delivery at $10 a ton, a price which is from $3.50 to $5 a ton higher than prewar figures. According to a representative of the United States Department of Agriculture, who recently returned from an extensive trip through the sugar-beet areas of the United States, the prospects for the 1919 crop are excellent. An acreage increase of from 20 to 25 per cent over the plantings of last year is indicated. Soil conditions are better than usual at this time of year in all parts of the sugar-beet belt. However, there is not as much snow in the mountains as usual at this

season, and unless more snow falls there is some danger of mountain water shortage for irrigation purposes in certain parts of the sugar-beet area. The United States consumes about 4,000,000 tons of sugar a year under normal conditions, and of this amount approximately 1,000,000 tons, consisting of both beet and cane sugar, are of domestic production. Approximately 75 per cent of the home-raised sugar is made from beet roots and about 25 per cent from cane. Previous to the war Uncle Sam imported practically all of his sugar-beet seed, but due to the curtailment of foreign trade in sugar-beet seed and the development of a domestic beet-seed industry, he is now able to produce about 50 per cent of the seed needed for his annual planting. The domestic production of sugar-beet seed has developed rapidly, and the prospects are that in 1919 a new record for home-grown seed will be established.

Soy Beans as Green Vegetables.

Hahto soy beans, introduced from Japan, are excellent for the production of green beans similar to lima and butter beans. About 115 days are required for the bean to make sufficient growth for use as a green vegetable. Although the Hahto bean is best adapted for growing in the southern States, it may also be successfully produced as a green vegetable during favorable seasons throughout the corn belt, according to specialists of the United States Department of Agriculture. Being a bush variety, it also is adapted for forage production, its yield of green feed or seed being superior to many other varieties on the market. In a dry form the Hahto bean cooks up easier than other varieties and has a better flavor. This bean is to be grown extensively by boys' and girls' gardening clubs in the southern States during the coming season.

Animal "TB" Works Under Cover.

No cattle owner can afford to live in doubt as to whether his animals are afflicted with tuberculosis, say officials of the Bureau of Animal Industry, United States Department of Agriculture. Unlike most other infectious diseases, tuberculosis has an insidious way of working under cover, and oftentimes animals of the most healthy appearance are found to react to the tuberculin test prescribed by the bureau. When slaughtered, the final proof that the tuberculin test was accurate is found in the diseased organs of the animal.

Careful experiments in practical work have shown that tuberculosis can not be detected to any great extent among animals by physical examinations. The most reliable method is the tuberculin test applied by a trained operator. Tuberculin, while regarded as the most accurate diagnostic agency known to science, is safe only in the hands of a trained and skillful operator who is acquainted with its limitations and with the symptoms it produces in the animals to which it is applied. The tuberculin test is prescribed by the Bureau of Animal Industry in the cooperative campaign it has begun to eliminate tuberculosis as an animal disease in this country.

Stockmen Sell Hogs Cooperatively.

Recently more market hogs accumulated in the Newlands irrigation project, formerly the Truckee-Carson project, in Nevada, than could be handled by the local slaughterers. As a result a representative of the United States Department of Agriculture advocated cooperative shipments to be marketed in San Francisco. He arranged with the farmers to deliver their surplus porkers on a certain date, so that the animals could be shipped in carload lots. The total shipping and marketing expenses ranged from 1¼ to 1½ cents a pound, so that producers realized a greater net income than from hogs sold at home. This initial shipment was so successful that henceforward the general farmers of the Newlands project intend to market all their surplus live stock in this manner.

Small Farms Favor Diversification.

On the Minidoka irrigation project in Idaho, diversification has been most widely practiced on the small intensively operated farms, report specialists of the United States Department of Agriculture. The farm unit of this territory was originally 80 acres, and even some of these tracts have been subdivided as a consequence of the popularization of intensive systems of live-stock husbandry. Despite the fact that the prices of butter fat in that part of the country have recently declined, dairying is still prospering, and farmers are buying more and better cows. The maintenance of small flocks of sheep or herds of hogs as profitable side lines on the average dairy farm of this irrigation belt has become rather common practice and has aided materially in increasing the average farm income.

Tighter Quarantine Against Diseases.

It is imperative that quarantine regulations related to the importation of live stock into the United States be more rigidly enforced than ever before, say officials of the United States Department of Agriculture. Two infectious and contagious diseases of the horse, ulcerative and epizootic forms of lymphangitis, are prevalent among the horses and in the war-trodden soils of Europe. The chances are that thousands of war horses are extensively infected with the causative agents of these diseases; hence the need for special precautions.

Plant Ensilage Corn Early.

Northern and western farmers, especially dairymen, are urged by the United States Department of Agriculture to plant the strong germinating seed of ensilage varieties which they secure from Virginia and Missouri or other Southern States at least two to three weeks earlier than the home-grown seed which they plant for grain production. Otherwise, according to the Federal corn experts, the silage corn makes a rapid, long-jointed, tender, succulent growth, and is so green when fall frosts occur that it is heavy to handle, low in feeding value, and produces ensilage which is sloppy and too sour. On the other hand, if the silage corn is planted late in April or early in May it makes a slower, hardier growth, it better withstands spring frosts and summer drouths, and reaches a more advanced condition of maturity and produces more grain. This applies particularly to the large-growing ensilage varieties, and usually does not include the early maturing home-grown varieties which, as a rule, are not benefited by unusually early planting. Northern ensilage crops should be judged by their feeding value, and not by their height or weight or the amount of labor necessary to ensile them. Although earlier planting necessitates earlier cultivation, it pays. Early tillage dries and warms the soil surface and promotes the germination and early growth of the corn.

Less Cholera—More Hogs.

An important result of hog-cholera control work, begun by the United States Department of Agriculture in 1913, and which has resulted in a steady decline of the disease, has been the stimulus given the development of swine raising in the South. With other activities of the department in this line, the assurance given to southern farmers that hogs can be produced without fear of losses from cholera has encouraged growing not only larger numbers of animals but also better types. This has been noticeable particularly in Georgia. A few years ago that State purchased about 40,000,000 pounds of pork more than it produced annually. But efforts for the control of hog cholera have gradually extended over the entire State, with resulting confidence in hog

raising. By 1918 Georgia was producing pork enough to make shipments to outside points besides supplying a large number of hogs to local slaughtering establishments. Similar progress has been made in Mississippi, Alabama, and Florida.

Extension Men Boost Sheep Raising.

The 25 sheep-extension men of the United States Department of Agriculture now working in cooperative demonstration projects with State extension forces will be under the supervision of G. H. Bedell, who was formerly county agent of Greene County, Pa. Mr. Bedell has been appointed specialist in sheep husbandry and began his work in the Federal department March 17. The work of the department's extension man in Louisiana is illustrative of what these workers are doing in many parts of the country to improve the sheep industry. He assisted in bringing the sheepmen of that State together at a meeting of live-stock raisers which resulted in the organization of the Louisiana Sheep Breeders' and Wool Growers' Association. The purpose of this organization is to interest farmers in raising more and better sheep, to sell their wool clips cooperatively, and to unite them in their fight against sheep-killing dogs.

TO DIRECT BROADENED WORK IN FARM MANAGEMENT OFFICE

(*Continued from page 1.*)

partment unusually well qualified to handle the large and important task of directing the many activities connected with farm management and agricultural economics.

"The department is to be congratulated on securing Dr. Taylor. The country at large is to be congratulated in a bigger way on having his services at its command."

PLAN FOR REORGANIZING FARM-MANAGEMENT WORK

Reorganization and expansion of the Office of Farm Management of the United States Department of Agriculture is recommended by the committee of farm management leaders and others appointed some time ago by Secretary Houston to study the work of farm management and outline projects for more extensive studies. The committee is made up of the following economists and students of farm crops:

H. C. Taylor, agricultural economics, University of Wisconsin; George F. Warren, farm management, Cornell University; Andrew Boss, agronomy and farm management, University of Minnesota; J. A. Foord, agriculture and farm management, Massachusetts Agricultural College; J. I. Falconer, rural economics, Ohio State University; R. L. Adams, farm management, University of California; G. I. Christie, Assistant Secretary of Agriculture; and representatives of the Bureau of Crop Estimates, the Bureau of Markets, and the Office of Farm Management of the Department of Agriculture.

The basic recommendation of the committee is that the office be expanded to include both farm management and farm economics and that it be established as a bureau under the name of Bureau of Farm Management and Farm Economics. This, the committee states, it recommends "in recognition of the work already accomplished in farm economics along with the investigational work in farm management and in view of the great need for still further studies of the farming business."

Would Expand Present Work

Practically all of the changes recommended are in the nature of expansion and improvement rather than of creation. The system recommended for studies in cost of production is much more comprehensive than that heretofore used. "We have reviewed the projects now under way," the committee says, "and wish to commend their continuance and development." Some projects, it is thought, should be continued under other names. Some that are related to agronomy and some to other subjects, says the committee, "should perhaps be transferred to some other bureau of the department, securing the information or data desired on these lines through cooperative relations rather than independent action." In the projects underway, a great deal of work has been found that, the committee thinks, could be more profitably included under the term "Farm economics." "This work," the report continues, "is of great value in understanding the industry of agriculture and should be maintained and even further extended." Then follows the recommendation for the change of name.

Projects Recommended

The work of the bureau, in the opinion of the committee, should be grouped around the following projects: Cost of production, including financial records, enterprise records, complete cost records, price relations, and basic unit factors; farm organization, including farm business analysis, farm practice, effective use of labor and farm equipment; farm finance, including methods of financing, insurance, and taxation; farm labor, including supply and movement, trend of population, living and housing problems, creating new productive enterprises for farm labor, and standards of supervision and compensation for farm labor; agricultural history and geography, including trend of agricultural development, shifts of agricultural production, relation of American to foreign agriculture, and supervision of the Atlas of Agriculture; land utilization, including land resources and utilization, land settlement, and land ownership and tenancy; farm-life studies, including cooperation and trend of cooperative movements as affecting the farmer's life and activities on the farm, agricultural relations to other industries, agriculture for industrial workers, conditions of farm life as affecting national welfare; extension work, including publications and illustrative material, farm-management demonstrations, farm labor supply, and other farm economics demonstrations.

Importance of the Project

The first two projects named, cost of production and farm organization, are closely related, the committee points out, to investigations of the individual farm and the problems of the individual farmer in organizing his business for definite results, and should be under the leadership of men who understand the problems and methods of conducting, analyzing, and interpreting farm management data. The three following projects, farm finance, farm labor, and farm history and geography, have more to do with the economic aspects of group needs and movements and of the needs of agricultural industry as a whole in its relation to other industries and to the demands of increasing population. The project of land utilization would have to do with the problems arising out of the relation of the farmer to the land. The project of farm-life studies would deal with the social aspect of farm life as effected by the character of agriculture as an industry and would include such subjects as schools, roads, and health as they affect farm life and activities.

All these problems, the report continues, call for intelligent study by men trained for the work, men who have a keen sympathy with farm life and who will treat it with a view to the welfare of the people who live in the country. They must be selected, it is stated, from among men of the caliber of those who are heads of departments in the best agricultural colleges, and, in order to attract them, the salaries offered must be comparable with the salaries of such men, including the extra pay they receive for summer work. The salary of the chief of the bureau will need to be suf-

ficiently large to attract a man comparable with the deans and directors of the best agricultural colleges and experiment stations.

Should Cooperate with States

It is recommended that the investigations of the Office of Farm Management requiring field work be carried on in cooperation with the State college and experiment stations. This, it is believed, would prevent duplication, correlate activities, promote the development of State departments, unify the methods, and improve the general character of all farm management work.

Before the Federal department begins work on a project in any State, it should ascertain what has been done in that State and should consider the opportunity for cooperation, the report continues. So far as practicable, personal consultation should be held with the proper State agencies with a view to securing their approval, and a memorandum of agreement should be drawn up showing the purpose, nature, and extent of the work contemplated.

COMMITTEE GIVES PLAN FOR FINDING PRODUCTION COSTS

Cost-of-production studies are of value to the individual farmer and at the same time are helpful in ascertaining the economic status of farming as an industry, says the report of the committee appointed by the Secretary of Agriculture to consider a plan of organization for the Office of Farm Management, and outline the field of operation, and especially methods of procedure in making cost-of-production studies.

The primary purpose of cost-of-production studies, says the report, are:

1. To record the details of the farm business for reference.

2. To give an insight into the elements and interrelations of the different farm activities.

3. To furnish information that may enable the farmer to reduce costs, or otherwise increase profits.

4. To make possible a comparison of the profitableness of the different enterprises and combinations of enterprises.

From the standpoint of the public, cost-of-production studies provide the facts which give a basis for intelligent judgment upon the probable effects of any given legislation or other public activity upon the farmer as a producer and as a citizen. Cost-of-production studies are therefore one of the means of providing the basic facts needed by legislators and price commissions in comparing the profits of competing lines of production and estimating necessary price.

Three Methods Recognized

The committee recognizes three ways of obtaining cost data—cost accounting, the survey method, and the questionnaire sent by mail. The accounting method is based on complete records of all farm work and business transactions. Arrangements are made with farmers to keep detailed records of all operations and transactions in connection with the farm business. The work is supervised by personal visits to the farm. It is desirable, the committee says, that cost accounts be kept to obtain basic data, and cumulative results of such work become increasingly valuable.

By the survey method trained investigators obtain the necessary data, some from the farmer's books, some from the books of persons to whom the farmer sells and from whom he buys, some from his bin, silo, and building capacities, and some from estimates made by the farmer. One of the advantages of this system is that records are obtained from all classes of farms after the close of the farm year, so that, when desired, areas more representative of normal conditions may be chosen. The committee points out, however, that by the survey method it is sometimes difficult to determine the amount of general expense and miscellaneous labor and the proper basis for apportioning such items to different enterprises, and that, unless the investigator is thoroughly experienced in the subject he is studying, some items of importance are likely to be omitted.

Both Systems Are Reliable

Either method, the committee says, is useful and reliable when the work is carefully conducted, but preferably both should be used. The detailed cost accounts serve as a check on the survey work, which in its turn shows the relationship of the farms on which cost accounts are kept to the average farm.

The questionnaire sent by mail can be used to advantage in securing supplementary data from large numbers of farmers, but, in the opinion of the committee, it should cover only a limited number of cost items, and the questions should be direct and clear.

The specific items to be considered in cost-of-production studies, the report continues, will always depend upon the enterprise under consideration. When the survey method is used, it is essential that the list be complete enough so that no item will be omitted either by the farmer or the investigator. When the accounting method is used a classification is needed that is broad enough to include all charges, but the cost items will be developed in the working out of the records and will vary with the enterprise. The following grouping is suggested:

Farm-Enterprise Costs

Direct charges to farm-enterprise accounts.—Labor: Man labor (including labor of men, women, and children), animal labor, mechanical labor (tractor and truck).

Materials: Crop materials: Seed, fertilizer, twine, sprays. Stock materials: Feed, bedding.

Cash: Selling, insurance, taxes, thrashing, veterinary, breeding fees.

Investment: Depreciation of investment in live-stock, interest on investment in live stock.

Indirect charges to farm-enterprise accounts.—(Consisting of labor, material, cash, and investment costs that can not be charged as such to enterprise accounts, but which may be assembled under definite headings and distributed on the basis of use.) Use of mechanical equipment: Labor, materials, cash, and investment charges pertaining to mechanical equipment. Use of buildings (and similar improvements): Labor, materials, cash, and investment charges pertaining to buildings. Use of land and land improvements: Labor, materials, cash, and investment charges pertaining to land and land improvements. Special charges: Manure, lime, breeding males, perennial crops. General expenses or overhead: Labor, materials, cash, and investment charges that can not be charged direct or assembled under the other indirect cost headings.

Benefits Individual and Public

The benefits of cost-of-production studies, the report says, accrue both to the individual farmer and to the public. From the standpoint of the individual farmer the primary purposes are to record the details of the farm business for reference, to give an insight into the elements and interrelations of the different farm activities, to furnish information that may enable the farmer to reduce costs or otherwise increase profits, and to make possible a comparison of the profitableness of the different enterprises and combinations of enterprises. The records secured are of fundamental importance to the whole program of agricultural research and education, because they furnish the data for analyzing the farm business. The results of such studies on a number of farms where a given type of farming is practiced are useful not only to the farmers on whose farms the results are obtained, but are of value in showing

other farmers how to improve their methods.

From the standpoint of the public, says the report, cost-of-production studies provide the facts which give a basis for intelligent judgment upon the probable effects of any given legislation or other public activity upon the farmer as a producer and as a citizen.

FARM ECONOMIST APPOINTED FOR PRODUCTION COST WORK

The United States Department of Agriculture announces the appointment of Francis W. Peck, of the University of Minnesota, to the position of farm economist in the Office of Farm Management. Mr. Peck, under the immediate direction of Dr. H. C. Taylor, the new chief of the Office of Farm Management, will have charge of the studies and investigations relating to the cost of producing farm products. The general plan and methods for securing cost-of-production data were recently outlined by a committee of experts appointed by the Secretary of Agriculture. The report of the committee has been published by the department, and will serve as a guide in all future studies and investigations in this field.

Mr. Peck has been connected with the University of Minnesota for a number of years. Since 1912 he has been an instructor and assistant professor of farm management at that institution, and has also had charge of its cost-accounting investigations. He has prepared and published a number of bulletins dealing with the cost of producing farm products and other farm-management problems.

Mr. Peck was born and brought up on a farm in Indiana, where he received his common-school education. Later he attended the University of Minnesota and received his bachelor and master degrees. The long and varied experience which Mr. Peck has had in connection with studies of the cost of production peculiarly fit him for the responsible task of directing the enlarged activities of the Office of Farm Management in this important field.

WATCH THE STOCK PEDDLERS

Readers: Get the names and addresses of all persons and companies offering you speculative or doubtful stocks and securities, particularly if in exchange for your liberty bonds or war savings stamps, with copies of their "literature." Mail them promptly for investigation to the

Federal Trade Commission,
Washington, D. C.

Help the Victory Liberty Loan.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, DAVID F. HOUSTON.
Executive and administrative head of the department.

[1] Assistant Secretary of Agriculture, CLARENCE OUSLEY.

[1] Assistant Secretary of Agriculture, G. I. CHRISTIE.

[1] Assistant to the Secretary, ALONZO E. TAYLOR.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

[1] Assistant to the Secretary, JUNIUS F. COOK.
Mr. Cook acts as the immediate representative of the Secretary in the execution of the powers conferred upon him by the President's proclamation of May 14, 1918, with reference to the licensing of the farm-equipment industry.

Solicitor, WM. M. WILLIAMS.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in all legal matters.

Office of Farm Management, H. C. TAYLOR, *Chief*.
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, CHAS. F. MARVIN, *Chief*.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, HENRY S. GRAVES, *Forester*.
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. MOHLER, *Chief*.
Studies and gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, WM. A. TAYLOR, *Chief*.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, CARL L. ALSBERG, *Chief*.
Enforces the Food and Drugs Act; investigates questions of agricultural chemistry.

Bureau of Soils, MILTON WHITNEY, *Chief*.
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, LEON M. ESTABROOK, *Chief*.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Bureau of Entomology, L. O. HOWARD, *Chief*.
Studies insects in their relation to agriculture.

Bureau of Biological Survey, E. W. NELSON, *Chief*.
Studies wild birds and animals, their distribution, habits, and relations to agriculture; administers the Federal bird and game reservations and the Federal laws protecting game and regulating the importation of birds and animals; controls noxious mammals, and experiments in fur farming.

Bureau of Public Roads, ——— ———, *Director*.
Studies and supplies information regarding road-making, road management; road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. TRUE, *Director*.
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, CHARLES J. BRAND, *Chief*.
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers the Warehouse Act. Mr. Brand, as chief of the Bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licensees operating stockyards, or handling or dealing in live stock in or in connection with stockyards.

Division of Publications, EDWY B. REID, *Chief*.
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. MARLATT, *Chairman*.
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. HAYWOOD, *Chairman*.
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON: GOVERNMENT PRINTING OFFICE: 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI APRIL 2, 1919 No. 35

SOLDIERS RETURN TO FARMS, DEPARTMENT REPORTS SHOW

Christie Describes Employment Work to Emergency Committee

Representatives at Demobilization Camps Help Veterans to Find Jobs; Chance for Farmers to Make Improvements

That large numbers of returning soldiers and sailors are seeking work on farms is the statement made by Assistant Secretary G. I. Christie, representative of the United States Department of Agriculture on the Council of the Emergency Committee on Employment for Soldiers and Sailors, before the first meeting of the council March 17. He told how department representatives in the demobilization camps are aiding returning soldiers and sailors to find jobs.

The creation of the emergency committee was made necessary because the United States Employment Service, lacking funds, was forced to curtail its machinery to about 15 per cent of normal and to close most of its branch offices. To meet the need, and with the concurrence of the Secretaries of War and Labor, Grosvenor B. Clarkson, Director of the Council of National Defense, appointed a committee under the chairmanship to Col. Arthur Woods, formerly police commissioner of New York City, and now special assistant to the Secretary of War.

The Emergency Committee

Other members of the committee are: Franklin D. Roosevelt, Assistant Secretary of the Navy; E. N. Hurley, chairman of the United States Shipping Board; Nathan D. Smyth, Department of Labor; G. I. Christie, Assistant Secretary of Agriculture; B. S. Cutler, Chief of the Bureau of Foreign and Domestic Commerce; Matthew Woll, American Federation of Labor; Elliot Goodwin, general secretary of the Chamber of Commerce of the United States; S. P. Bush, Industrial Board of the Department of Commerce; E. J. Ayers, Department of the Interior; John H. Hollowell, of Boston; and Grosvenor B. Clarkson, Director of the Council of National Defense.

Approximately 1,000,000 men went from the farms into military and naval service. With at least that many jobs, therefore, on the farms of the country to be filled, the question of the readjustment of soldier and sailor farmers to farm jobs is one of the large problems before the committee. In discussing it before the committee, Assistant Secretary Christie said:

"Reports from the farm-help specialists of the United States Department of Agriculture indicate that large numbers of returning soldiers and sailors are taking up work on the farms. During the last two years the labor shortage on the farms has been such that these young men are welcomed by the agricultural people and are given every opportunity and encouragement to take up agricultural work.

"Through the States Relations Service of the Department of Agriculture, and the extension service of the agricultural colleges, agricultural representatives have been placed in the demobilization camps, where they are conferring with the soldiers and giving them needed information as to openings and opportunities in agriculture. This is resulting in many thousands of young men returning to the land to follow the occupation in which they are interested and for which they have been trained.

Farm Lads Returning from Cities

"It is true that some of the men who left the farms for the Army will not return to the land. This is neither unusual nor unexpected. In the natural course of events many thousands of young men left the farms during peace time for industry, the professions, and work in general in the cities. Many of these men who would have left the farms for such work have been taken into the Army, and that they now choose to remain in the city is not to be taken as an indication that all young men are leaving agri-

(Continued on page 16.)

WOULD HONOR WAR HEROES ON ARBOR DAY THIS YEAR

Secretary Advocates Planting of Trees for Fallen Men

Says Suggested Observance Will Give Day a Meaning More Profound and Exalted, and More Personal Association

"Such an observance of Arbor Day as will secure a widespread planting of trees dedicated to those whose lives have been sacrificed in the great struggle to preserve American rights and the civilization of the world" is advocated by the Secretary of Agriculture, David F. Houston, in a letter just sent to the governors of the States.

The Secretary's letter follows:

Day Originated in Nebraska

"The observance of Arbor Day began soon after the Civil War. A distinguished citizen of Nebraska, who later became Secretary of Agriculture, was the prime mover in securing its recognition within his State, where it first took root; and the board of agriculture of that State, on his motion, designated the first Arbor Day. From the beginning it has had a civic motive and an association of patriotism.

To Perpetuate Memory

"Another and greater war has come to its inevitable conclusion. The cause of righteousness, of liberty, of all that Americans hold dear has prevailed. We shall seek many ways to perpetuate the memory of those who made the great sacrifice. The memorials will take many forms. The names of those who have fallen will be perpetuated by costly monuments and inscribed on enduring tablets. Great works that serve the needs of peace also will doubtless be dedicated to them.

"But along with these memorials we can easily discover ways in which we

may simply and spontaneously pay our tribute to them. We can keep fresh our memory of what they gave; and we can perpetuate their names in familiar places. It has been happily suggested that we may do this by adorning with young trees, each named for a fallen soldier, our waysides, our yards, and our pleasure places. And in most of our States Arbor Day is at hand. This year we may give to that day a meaning more profound, a purpose more exalted, yet also an association more personal.

Commends Idea to States

"I conceive that if the origin of the day be borne in mind, the invitation to our fellow citizens to join in making it a day 'especially set apart and consecrated for tree planting' may appropriately come from this department. I take the liberty therefore of suggesting that you commend to the citizens of your State, and particularly to those in attendance upon its schools, such an observance of Arbor Day as will secure a widespread planting of trees, dedicated to those whose lives have been sacrificed in the great struggle to preserve American rights and the civilization of the world."

SECRETARY HOUSTON PLANTS TREE IN MEMORY OF SOLDIER DEAD

A memorial tree to the soldier dead of the United State Department of Agriculture was planted by Secretary David F. Houston in the department grounds on March 26. The Secretary was assisted by Col. Henry S. Graves, chief of the Forest Service, who himself saw service in France. Representatives of the Army and the Navy participated in the ceremony. The tree selected to commemorate the sacrifice of the 15 employees of the department who died in service is a white oak.

Secretary Houston recently addressed a communication to the governors of the various States suggesting that they convey to their people the thought that, by planting trees for fallen soldiers, they may pay simple and beautiful tribute to the heroism of the men who died for the cause of universal liberty. This thought, it is believed, will be carried out rather generally on Arbor Day, shortly to be observed in most of the States.

Drop in War-Time Exports of Animal Fats and Oils

Exports of animal fats and oils from this country considerably increased in 1918 to 648,000,000 pounds, but in the preceding war years they were low, and even in 1918 they did not exceed the average of the period 1910–1914, and were much less than these exports from 1897 to 1909, when they averaged about 860,000,000 pounds.

Beef fats and oils have been exported largely for the manufacture of margarine, and this use nearly ceased during the war. This group of fats and oils exceeded 300,000,000 pounds from 1906 to 1908, but from that period a decline continued to 101,000,000 pounds in 1914, followed by 119,000,000 pounds in 1916, only 53,000,000 pounds in 1917, and 93,000,000 pounds in 1918.

Exports of pork fats and oils, mainly lard, increased to 555,000,000 pounds in 1918, from 385,000,000 pounds in 1917, one of the very low years in a long period. The quantity of 1918 was greater than the average as far back as 1908, but was below the average of 1897 to 1907.

More than one-half of the exports of meat and meat products from this country in 1914 were fats and oils, less than one-third in 1916, one-quarter in 1917, and a little over one-fifth in 1918. The low meat exports of 1914 and the usual strength of fats and oils in foreign trade caused an exceptionally high fraction in that year. Previously it had been lower, although above the fraction of the subsequent war years.

Plant Quarantine Amended to Admit Bulbs of Flowers

The quarantine governing the importation of nursery stock and other plants and seeds into the United States has been amended to permit the importation of lily bulbs, lily of the valley, narcissus, hyacinth, tulip, and crocus packed in sand, soil, or earth, provided such sand, soil, or earth has been previously sterilized in accordance with methods prescribed by the Federal Horticultural Board.

Sterilization must be done under the supervision of an authorized inspector of the country of origin, who must certify to it. This provision is amendatory to regulation 3 of the rules and regulations supplemental to the notice of quarantine, which required that such bulbs when imported must be free from sand, soil, or earth.

It was brought to the attention of the board, however, that dry earth is the only suitable material known for packing these bulbs, and experts of the Department of Agriculture advised that such material can be cheaply and satisfactorily sterilized by heat in such way as to involve no additional risk of introduction of dangerous plant pests.

Unmarketable potatoes add succulence to the dairy ration. Where corn silage is not available and there are plenty of small potatoes, a peck a day will give a marked increase in milk flow. They should be introduced into the ration gradually and be run through a root cutter to avoid the possibility of choking the animal.

TREES.

By Clarence Ousley.

TREES are the arms of Mother Earth lifted up in worship of her Maker. Where they are, Beauty dwells; where they are not, the land is ugly, though it be rich, for its richness is but greasy fatness and its gaudy raiment is but cheap imitation of forest finery.

Trees are the shelter of man and beast and bird; they furnish the roof above us, the shade about us, and the nesting places of love and song. They call children out to play; they entice sweethearts into leafy coverts to seal their vows with fond caresses; they console and gratefully reward old age. They are the fittest ornaments of wealth and the inalienable possessions of the poor who can enjoy them without having title to them. They are the masts that fly the flags of all nations and the sails of all the seas; they are the timbers that bridge forbidding streams; they bear the wires of the world's intelligence; they hold the rails that carry the traffic of the continents; they are the carved and polished furnishings of the home; they cradle the young and coffin the dead.

Trees are nature's prime sources of food; their fruits and nuts gave sustenance to the first tribes of men and are the sweetest and most nourishing of the earth's products.

Trees herald the spring with glorious banners of leaf and bloom; they clothe the autumn in garments of gold and royal purple; bared to the winter's cold, they are the harp of the winds, and they whisper the music of the infinite spaces.

Before the earth could be peopled it was set thick with trees; and when man has run his course and the race we know has disappeared in the completeness of its mission or perishes in the destruction of its trees, the earth will spring up again with new forests to shelter and sustain a new race of men and beasts and birds to work out a greater destiny. Perhaps if we are wise enough to replenish our wasting forests and to make ourselves worthy of the gift of trees we may be permitted to accomplish that greater destiny which the Mighty Forester, the Perfect Orchardist, the Loving Father requires in the fulfillment of His sublime purpose.

FARMERS AND BUSINESS MEN SHOULD WORK HAND IN HAND

Assistant Secretary Christie Tells Bankers of Help They Can Give

Sees Prospect of Demand for Food Greater Than Prior to 1914; Points Out Benefits of Organizations

Addressing the recent meeting in Washington of the agricultural commission of the American Bankers' Association, G. I. Christie, Assistant Secretary of Agriculture, pointed out the work that bankers can do in helping to develop American agriculture, complimented the members of the association for their efforts to this end, and declared that farmers and business men should work hand in hand.

"The Department of Agriculture," said Mr. Christie, "could not reach the farmers effectively if it did not have such support as you give.

"What is going to be the future of Agriculture? What is the farmer going to do now? During the past two years we have asked the farmers to plow more land, to plant more grain, to feed more hogs, to produce more foodstuffs. They have complied with the request in a magnificent way. But the war is over now—what is next?

"I wish I were able to give a satisfactory answer. It seems important that as bankers, as men who are leaders, as men who are trying to show the way out, that you refuse to become involved in the haze and the mist that is clouding many minds at this time. Many people are assuming a pessimistic attitude and are ready to say that everything is going to the bad, that agriculture is not going to keep the pace that it set during the last few years, that agriculture can not continue to go ahead, and that, therefore, there is going to be a big change, that there is going to be a big reaction along the line, that a calamity will befall the farmers. They have a dread and fear in their minds. They are preparing to protect themselves against something—they know not what.

More Food Consumed

"We should consider a little the history of production and consumption of foodstuffs. This country has practically doubled in population every 25 years since its beginning, until now there are about 103,000,000 people. The consumption of products from the soil has grown just in about the ratio of production. During the few years prior to 1914, the production in the United States was not keeping pace with consumption. Exports of foodstuffs were decreasing. Imports of foodstuffs were increasing. Prices were rapidly rising. This was evidence of the fact that the farms of America were not producing sufficient supplies to meet the demands.

"Is it not reasonable to expect that the demands for agricultural products from this time on will be even greater than prior to 1914? Increased population at home; high wages, which are bound to continue; increased shipping facilities; and an increased demand from Europe are factors which support the belief that American farms will need to maintain maximum production.

"In the past two years the methods employed by our farmers in connection with production and conservation have advanced 20 years beyond what they would have been under peace conditions. Prior to 1914, and even up to the declaration of war by the United States, there were farmers in every community who were ready to sit back and say: 'I am getting along. My farm is satisfying me. I am getting a good living. I am making a little money. I just don't care to hear from the county agent. I won't attend the farmers' institute. I have little interest in the agricultural college or the United States Department of Agriculture. I am satisfied because I am getting along.'

War Brought New Farming

"There were thousands of farmers in this country who assumed that attitude and it was impossible to approach them through any medium that we knew of at that time. But when war was declared and Uncle Sam said to the farmers of America, 'Grow more wheat, produce more meat and foodstuffs of every kind,' then those farmers with a spirit of patriotism and an additional inducement of fair prices and assurances of reasonable compensation for their expenditures called upon the Department of Agriculture, the agricultural colleges, the county agent, and every good farmer in the community—upon anyone that could give them any information. From every section came the call: 'Tell us what you want us to do. Show us how to do it better. Advise us on the best methods, and we will practice them and put them into operation.'

"The attitude as well as the spirit of the farmers of America changed from peace-time to war-time farming. Do you think now that the man who has treated his oats for smut and has increased his yield; the man who has applied fertilizer to his wheat and has increased his crops 5 to 10 bushels per acre; the man who has sought information on the feeding of cattle and has found that by adding protein to the ration he can produce a pound of beef with 9 pounds of corn where the old ration required 13 pounds of grain; the man who was encouraged to build a silo through which he is able to feed a carload of cattle with the crops from 16 acres of land, when before it required 26—do you think that these men who have learned these lessons, have seen the results, and have profited by them are ever going back to the old-time methods that existed prior to the war?

Will Not Go Back

"Improved methods and practices adopted and now being applied have come to stay! Farmers who have seen the light and who have gained helpful information are reaching out and inquiring in a broader way for additional aid. This past fall farmers planted 49,000,000 acres of wheat. The condition of this crop is excellent and there are prospects for a bumper yield.

"Favorable weather has been an important factor in securing the present stand of wheat, but the wheat crop of America has been more the result of the good methods of farming that were employed in the fall of 1918. There were more tons of fertilizers applied on this wheat than during any previous year. There was more early plowing. There was better cultivation. There was better selection of varieties and better treatment of the seed. There has been more top dressing of the crop with straw and manure than ever was known in any other year. Part of the crop may be due to chance, some to weather, some just to plain luck, but the big results that are showing at this hour in the wheat fields all over this country are due to the improved methods that have been employed by the farmers in planting and handling the large wheat crop.

"There is large and sufficient evidence to show that agriculture has made a rapid, sure, and substantial advance. If that is true, then agriculture will not readily revert.

Wealth from the Soil

"As a result of the war the United States has spent large sums of money and has incurred a mammoth debt. This will have to be paid and the tax law which has recently been passed indicates something of the part each citizen must pay in the coming years. The ability of the country to bear this burden will depend upon the sources of new wealth that can be developed. Agriculture is one of the largest and most important sources of 'created wealth,' for from the

(*Continued on page 14.*)

LOOKING FORWARD IN FARMING OPERATIONS

APRIL						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	....	....	....
....	....	....	....	....	....	....

Seasonal Suggestions by the U. S. Department of Agriculture in Anticipation of Farming Problems During the Next Few Weeks

NORTH AND WEST

By the Office of Extension Work North and West

TIME TO SEED RED CLOVER

Wherever clover has not yet been seeded, the time is at hand for doing so. During April it should be possible in most places to use a drill or to harrow the seed in, and this course is strongly advised. A spike-tooth harrow run over the field crosswise of the rows of grain will not hurt the grain, especially if the teeth are turned backward, and will help materially in covering the seed when it is sown broadcast. If put in with a drill the seed should not be more than one-half inch deep in heavy soil, but on light soil it may be put in as deep as an inch.

Wherever clover seed is commonly raised it will be well at this time to send for Farmers' Bulletin No. 971 and learn in advance how to control the clover-flower midge. This insect does a great deal of damage to the clover seed crop, and with the possibility that clover seed may be a good price next fall, it will be desirable for farmers to do everything they can to raise a large crop. The midge may be controlled if taken in time, but plans for this must be made now.

ROLLING WINTER WHEAT

When the frost comes out the ground it is likely to leave the soil in the winter-wheat field filled with small cracks and checks. These expose a large number of roots and if the weather is dry the roots exposed will be injured or killed. Rolling about the time wheat starts to grow prevents such injury, as it presses the earth firmly around the roots. Experiments at the Nebraska experiment station in 1902, 1903, 1905, and 1906 showed that the rolled fields each year produced more than the unrolled fields, the average increase for the four years being 5.1 bushels. The experiments also showed that harrowing after rolling was not so good as rolling alone, the reason probably being that harrowing loosens up the plants again.

PLANT KAFIR AND MILO

The time for planting the grain-sorghum crop is approaching. An ample supply of good seed is important. If not already done the seed heads selected last fall should be thrashed. If none were saved and bulk seed has to be used, only the best obtainable should be used and it should be cleaned well with the fanning mill, blowing out all hulls, cracked kernels, and immature seed. If no fanning mill is available, make the wind do it.

All seed should be tested for germination, as good-looking seed often has a low germination and poor stands and low yields usually result from using such seed. A little time spent now may pay big profits next fall. Treat the seed to prevent kernel smut. The United States Department of Agriculture and State extension services are conducting a campaign in several States to increase the yield and acreage of the grain-sorghum crops. Consult your county agent.

PLANT FLAX

The disorganization of agriculture in India, Russia, and other European countries has greatly reduced the world's flax acreage. This, and the fact that any large program of building construction will require large quantities of linseed oil, makes it essential that the United States prepare to grow, if possible, all the flax that will be needed for its own use rather than little more than half, as in recent years. Flax is a profitable cash crop and is unexcelled as a seed or late catch crop.

VARIETY TO GROW.

Where flax wilt occurs, as in Minnesota, eastern South Dakota, and the Red River Valley, the resistant varieties, of which N. D. Resistant No. 114 and Primost (Minn. No. 25) are the most resistant varieties obtainable commercially, should be planted; where wilt is not present in the above States, and in Montana, the variety known locally as Russian and Frontier N. D. No. 155) and N. D. R. No. 52 should be used, as they produce more seed than the resistant varieties. Good seed of all these varieties is scarce, but the extension services of the States where flax can be grown are endeavoring to locate all the good seed and to get it into the hands of the farmers. If you have good seed to sell or want to locate seed, write to your county agent or State extension director.

(Continued on page 6.)

IN THE SOUTH.

By the Office of Extension Work South

SOY BEANS AND COWPEAS

Although the seeding of soy beans and cowpeas will not be general until May and June throughout the regions adapted to these crops, it is well for farmers planning a large or small acreage to look forward to the fitting of the seed bed. The preparation of the soil for both of these crops, especially when grown for the production of seed, is similar to that for corn, and they, like corn, readily respond to any extra preparation. In general, the land should be plowed early and deep, fitted, and then harrowed at intervals until the beans or peas are planted; otherwise weeds are likely to choke out the young plants.

At this time it is well for those who have not planned for either of these crops in their farming systems, to consider the advantages to be gained from the many ways in which either crop may be utilized. The soy bean should receive special consideration, on account of its more general adaptation, wider utilization, and cheaper seed. An experimental plat should at least be made of this crop in order to become acquainted with its value and the handling of it for different purposes.

SWEET SORGHUM

Sweet sorghum is one of the standard forage crops of the Southern States, and is especially useful in the drier sections of the Southwest. Sorghum is a summer crop, growing best during the hot weather, and planting should be delayed until the ground is sufficiently warm to promote quick germination of the seed and rapid development of the young plants. No advantage is gained by planting sorghum seed in a cool soil. The method of planting will depend upon climatic conditions. In the drier sections of the Southwest, it is usually advisable to plant the sorghum in rows or drills, planting the seed sufficiently thick to prevent the stalks growing to any considerable size. It may be planted on level, prepared ground, or it may be listed, in which case the seed is deposited in the bottom of a furrow varying from 3 to 6 inches deep. Where seed is planted in a lister furrow, the

ground is gradually drawn to the young plants as it is cultivated, and results in keeping the root development much deeper in the ground than is possible where the seed is planted on the level ground.

Where the rainfall is abundant sorghum seed may be broadcasted, using from 1 to 2 bushels of seed an acre. On extremely rich bottom lands even more seed than this may be planted.

PLAN SILO CONSTRUCTION NOW

Profitable live-stock feeding, due to the unusual conditions, and particularly to the high prices of hay and grain, has become largely a matter of utilizing roughages to the fullest extent. Farmers who have or contemplate building a silo are fortunate indeed, for they will be in a position to meet the situation and produce the maximum amount of milk, beef, and mutton most economically. Evidence that the silo has become an actual necessity in most sections of the country for the production of these staple food products is not only borne out by the many experiments conducted by the different experiment stations throughout the country, but by the experience of thousands of farmers everywhere who have changed from old to the new way of utilizing the corn crop.

There are many advantages in the use of the silo, but the principal one is that silage is the cheapest and most profitable form in which a succulent feed for winter use may be provided. Being a succulent, palatable roughage, it permits the use of the oil by-products, such as cottonseed meal, oil meal, peanut meal, velvet beans, etc., which are among the cheapest sources of protein. Owing to the nature and feeding value of silage, cheap and practically unusable roughages may be used profitably for wintering live stock. It has been found that straw and cottonseed meal when fed with silage are superior to timothy hay fed with silage. Its value is equally as great when fed in combination with the commonly produced legume hays. The cost of practically all rations for ruminants may be greatly cheapened by the use of silage.

Perhaps one of the greatest values of silage lies in the fact that it enables the farmer to greatly increase the carrying capacity of his farm. It ordinarily takes the production from 1 acre of meadow to carry a 1,000-pound steer or cow through the winter. The same area, if planted to corn or sorghum and put into the silo, would carry three or more such animals, the same being true when fed to fattening cattle or for the production of milk. Approximately the same amount of feed may be produced from one-third the area of crop land thus used, or three times as many animals may be fed from the same acreage.

While it is true that all farmers do not need a silo, yet it is imperative that those having as many as 10 to 15 mature cattle or their equivalent should carefully consider the building of a silo at once. Cooperation with neighbors will make it possible to purchase silo-filling machinery at minimum cost and to fill the silo quickly, economically, and in a satisfactory manner.

CROPS FOR THE SILO

Corn and sorghum are the best crops for silage. More food nutrients are obtained from one acre of these crops than from an equal area of any other crop that may be successfully grown. Such crops are easily harvested and, owing to the large amounts of water which they contain, pack well, thus escaping excessive fermentation by the exclusion of air.

If it has been decided to fill a silo during the coming year it is important that sufficient acreage be set aside for the production of crops for this purpose. Corn or sorghum intended for silage should be planted thicker than for the production of grain and as early as the season will permit, in order that they may reach full maturity before harvest time.

A BUSY MONTH FOR POULTRYMEN

April should be a busy month in poultry raising. Future success depends on good work now. Do not handicap the chicks by unnatural restrictions. Let them hustle around. Standard-bred chicks can rough it as well as mongrels—even better. Let the chicks have plenty of liberty and keep their quarters clean. Get in touch with your county agricultural or home demonstration agent for advice on knotty problems.

GET RID OF LICE.

Head lice on chicks is one of the drawbacks from now on. No letup in fighting these pests should be allowed. There are many remedies on the market, but a little lard about the size of a pea rubbed thoroughly on the back of the head and neck is sufficient to rid the chick of these pests. This should be done after dark on a dry, warm night. Previous to this the coop, hen, or brooder should be thoroughly treated. Send for Farmers' Bulletin 801 on "Mites and Lice on Poultry."

CULL THE FLOCK.

It is a wise plan to begin culling the slow-growing weaklings this month. Those with prominent physical defects, such as very crooked tails, lameness, or other deformities that will tend to handicap future development and egg laying, should be culled out; also get rid of all males just as soon as possible, except those that will be needed for breeding purposes.

AVOID OVERCROWDING.

Another thing to be avoided is overcrowding. A coop, brooder, or colony house that was large enough to hold the baby chicks is not large enough after two or more months, depending on the breed and growth. It is absolutely necessary that the growing chicks have plenty of room to grow. The flock must be culled, and cockerels that are sufficiently large should be separated and disposed of. Chicks that have not shown proper growth should also be separated and leg or wing banded. Many of these chicks, even the pullets, should be marketed. Only the good, strong, vigorous specimens should be retained as breeders and layers, as these are the only ones that can return a profit.

PRODUCE INFERTILE EGGS.

Production of infertile eggs is strongly advised. Infertile eggs not only keep better but keep longer. The housewife should insist upon infertile eggs for preserving. Those who raise eggs for the market are making a great mistake by not removing the males from the flock. Millions of dozens of eggs, amounting to vast sums of money, are lost each year by the carelessness of the producer in allowing the male to run in the flock after the hatching season. It has also been proved that hens lay fully as well without the male. The cost of keeping the males should be considered, also the fact that early hatched, vigorous cockerels of this season will give better service for breeding next season than the old males, which should be disposed of.

PRODUCE SALABLE EGGS.

After removing the male, observe the following rules: Have clean and sufficient nests; gather the eggs twice daily; keep them in a cool, dry place; market them as often as possible, at least twice a week; do not market stray eggs that are found in haylofts, sheds, or out-of-the-way places unless positively sure that they are absolutely fresh; keep the small and very large eggs for home consumption. In this way a profitable demand for the eggs will be created.

PRESERVE EGGS NOW.

Many people will remember that they had to pay from 75 cents to $1.25 a dozen for eggs last fall and winter. It will not be necessary to pay such high prices if eggs are preserved in water glass now when they are lowest in price. Wherever they can be obtained, infertile eggs should be preserved, as they keep better. For instructions write to your State college of agriculture, county or home demonstra-

tion agent, or to the Department of Agriculture.

INSURE A MAXIMUM CALF CROP

Owners of beef-breeding cows should use every possible means to insure a maximum number of calves. In order to have a maximum number and at the same time have a uniform herd of calves, all cows should be bred within a period of 60 days or less, with this point in view. For spring calves (February and March), which in most sections is the desirable time to have calves dropped, the cows should be bred during May and June. The calves dropped at this time may be finished for beef at 22 to 24 months of age by keeping them throughout one winter and two summers, affording the greatest possible use of cheap pasture and forage crops. Where milk for family use is not an important consideration, cows may also be more cheaply wintered, and calves escape flies and hot weather when dropped at this time. In all such breeding operations only well-bred beef bulls should be used.

GET LAMBS READY FOR MARKET

It is of prime importance that lambs go on the market in good condition. Flock owners who had their lambs come in January should have them ready for the market by the 1st of April. The bulk of the lambing crop which is to be marketed should go on the market before June 1. In order to do this, flockmasters will have to give these lambs careful care and attention.

In the first place the ewes should be in good healthy condition at lambing time, so that they will supply their young with a sufficient amount of milk. Thin, poorly fed ewes never make good mothers and very often will refuse to own their lambs. Ewes which are in good condition usually give a larger supply of milk and are better mothers. In most cases it will be advisable to feed the ewes a grain mixture consisting of equal parts, by weight, of oats, bran, and oil meal, fed at the rate of one-half pound per head daily. If the ewes have been receiving no grain part of the lambing time, they should be started on a light feed and gradually increased until at the end of a week they will be on full feed as mentioned above.

Just as soon as the lambs are old enough to eat a little grain a lamb creep should be provided and the lambs given a regular feed consisting of ground oats and bran. The sooner the lambs learn to eat, more rapid will be their gain and they will go on the market in better condition.

When the lambs are 10 days old they should be docked. This is just as important with market lambs as with those kept for breeding. When 3 weeks of age they should be castrated. This operation should be performed on a clear sunny day, and the lambs should be put into a clean lot or stall after the operation has been performed. If the operation has been performed carefully no serious effect should result. The importance of this step in the care and management of the lamb crop in order that it may return the largest profit to the producer can not be overemphasized.

In marketing the lamb crop growers should ship to reliable firms that make a business of handling lambs. In communities where car shipments are possible, larger profits to the grower will be realized where this system is followed than where the lambs are sold in a community not used to handling this product.

MARKETING WOOL

Growers are interested in the marketing of this year's wool clip. There is considerable agitation among the growers for cooperative marketing. The main features to be considered are that the wool should be put up in a clean merchantable condition, free from all foreign material. Quality of the product should be the aim in every case. Consignments can then be made to any reliable firm and, where desired, a record of individual clips within the shipment may be kept. In this way the growers will be encouraged to produce a superior product, as the good clips will bring a deserving price and encourage the growers to produce wools of quality. Growers who have questions along these lines are advised to get in touch with the county agents or the sheep extension specialists in their respective States. These men will be glad to give assistance on request.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 4.*)

PLANTING.

Before planting, seed should be well cleaned, graded, and treated with formaldehyde, using one pint of formaldehyde to 40 gallons of water. The seed should be stirred constantly while the solution is being applied in a fine spray or by slowly sprinkling. Two quarts of the solution to one bushel of seed will be ample.

Flax should be planted as soon after May 1 as the ground can be put in good condition. If seeded after June 10, and there is any delay in germination, the crop is almost certain to be caught by early fall frosts. Flax can be planted on breaking and newly ploughed pasture and hay lands. It has also proved an excellent nurse crop for alfalfa clover, and grass in the semihumid areas. Sloughs and wet spots that must be plowed and seeded late can be utilized. The seed must be sown on clean land, as flax is a poor weed fighter. The seed bed should be well packed, have a smooth surface, and contain ample moisture to insure germination. Twenty to twenty-five pounds of seed to the acre is usually enough, heavier seeding seldom giving greater yield.

GET SEED POTATOES READY

As the time approaches for potato planting the grower should take the necessary steps to provide himself with good seed stock and to prepare for its disinfection before planting. High-grade seed potatoes are those which are true to name, free from varietal mixture, of good type, and grown from healthy and productive plants. In the absence of such seed stock select medium large-sized tubers of good shape and as free from scab and black scurf as possible.

TREATMENT.

In disinfecting seed potatoes one has the choice of two disinfectants—formalin, and corrosive sublimate, either of which are about equally effective against potato scab but are not on a par when black scurf (*Rhizoctonia*) is present on the surface of the tubers. For this disease the corrosive sublimate solution is much more effective.

DIRECTIONS.

The directions for the use of either disinfectant are as follows:

(1) Formalin solution: Dilute 1 pint formalin with 30 gallons water.

(2) Corrosive sublimate solution: Dissolve 4 ounces corrosive sublimate in 2 gallons hot water; dilute to 30 gallons.

Soak uncut tubers in either solution for 1½ to 2 hours; remove and spread out to dry.

In cutting the seed a further selection should be made by rejecting all tubers which, on the removal of a thin slice of flesh from the stem end, show a brownish discoloration. If this examination is carefully made it will eliminate practically all blackleg, fusarium wilt, and rhizoctonia-infected tubers from the seed stock.

The use of well-selected and properly treated seed should insure a much larger yield than that secured from unselected and untreated seed.

GARDEN AND ORCHARD NOTES

Order the season's supply of spraying materials at once.

Spray gooseberry bushes with arsenate of lead as soon as the leaves are approach-

ing full size or the worms will do serious injury in eating the leaves.

Berry packages and packages for the other early summer fruits should be ordered soon. At fruit-picking time a package in the hand is worth a dozen in the factory.

Bearing apple trees will set and mature a heavier crop of fruit if they are given 3 or 4 pounds of nitrate of soda or sulphate of ammonia a week or two before the blossoms open. This is especially true with trees growing in sod.

Give the strawberries early cultivation and clean out the weeds. About blossoming time stop cultivation and mulch the entire ground with straw or other vegetable matter free from weed seed to protect the berries from dirt and grit.

Early rhubarb of high quality can be had by placing cans or boxes, open end or side down to shut out the light, over two or three plants. Plants so covered will have stalks ready for use a week or two earlier than uncovered plants and the quality is more delicate.

If the orchard is to receive a coat of manure this spring get the work done as soon as time and weather permit. Then plow the ground as soon as it has dried out enough to be in good plowing condition. If there is a cover crop it will use much of the soil water and hasten the drying of the ground. It should be watched carefully and not allowed to get too large nor to dry out the ground too much before the plowing is done. Harrow the ground within a day or two after plowing and harrow at least every two weeks throughout the season.

Grown on good soil and properly handled, sweet clover makes a fair quality of hay which may in many cases be substituted with advantage for the more valuable alfalfa and clover hays.

Of the total number of farms in the United States, according to the last Federal census, the number worked by owners was shown to be 3,948,722; the number operated by managers, 58,104; and the number operated by tenants, 2,354,676.

No questions are of greater importance to the farm family than the farm's water supply and the disposal of its sewage. The prospective builder should make certain that these problems are solved before he does anything else, for they lie at the foundation of the entire household's health and comfort.

PROPER PREPARATION NEEDED BEFORE PLANTING SEED CORN

Undesirable Ears Should Be Discarded After Careful Testing

Work Done in Slack Season Saves Time When Spring Comes; Ears Saved Last Fall Should Be Inspected

To insure maximum and profitable yields of corn it is highly important, according to the United States Department of Agriculture, to prepare seed properly for planting. Farmers should devote as much time as necessary to the preparation of their seed corn before the rush of spring work. They should discard all undesirable ears, after subjecting the corn to careful germination test, while subsequently they should nub, classify, and shell the seed ears by hand, in addition to testing the accuracy of the drop of the corn planter.

First of all, it is essential that the grower carefully go over the seed ears he selected last fall in order to discard any that have discolored kernels or cobs or that have a dead appearance. Furthermore, he should throw out all extra light ears, as well as those with small or otherwise undesirable kernels, kernels with very sharp beaks, or with germs of poor development and appearance. The ears retained for seed purposes should show good development and maturity, be heavy for their size, and contain solid, vigorous-looking kernels of fairly uniform size and shape. These desirable ears should then be tested to determine whether all the kernels will grow.

Test of Samples Sufficient

Last winter, as a result of a very unfavorable season, it was advisable in many sections to carry on a careful germination test of each ear of the seed supply. However, the 1918 crop matured so much better that such painstaking and minute testing may not be necessary. The common practice of testing an average sample of the seed supply, such as the testing of 10 kernels from each of 50 ears, may be taken as a dependable indication of the germination of the entire seed supply. Some farmers neglect to nub their ears of seed corn in order to get rid of the small, shriveled, and undesirable kernels which often centralize at the tip of the ear, but as such seed is inferior, it should be eliminated. In a similar manner growers should discard the round, thick kernels from the butts of the ears in order to promote the even and uniform distribution of seed by the corn planter. Kernels that have been injured by mice or weevils, or that are otherwise undesirable, should also be discarded before the ears are shelled.

A Simple Way of Grading

Another commendable practice, report the specialists of the Department of Agriculture, consists in classifying the ears before shelling them in order that only uniform kernels of similar size and shape be used in the planting operations, as it is highly advisable that the corn planter should drop an equal number of kernels in each hill. If necessary to plant two or three classes or sizes of kernels they should be shelled and bagged separately. The planter plates and these respective bags of seeds, which have been thoroughly tested as to size and shape so that the proper number of kernels will be dropped regularly, should be tied up for convenience at planting time. This is a simpler and less costly method of cleaning and grading the seed than where expensive graders are used.

A point many farmers neglect each year is to shell their seed corn by hand. Each ear should be shelled separately into a hand sieve, as this practice permits the chaff from the cob to fall through and the kernels from each ear to be closely inspected before being deposited with the general supply. The value of this close inspection is lost if the ears are run through a corn sheller and some of the kernels cracked or broken.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 22, 1919:

Report of Committee Appointed by the Secretary of Agriculture to Consider Plan of Organization, Scope of Work, and Projects for the Office of Farm Management, and Methods of Procedure in Making Cost-of-Production Studies. Office of the Secretary Circular No. 132.

Farm Practice in Growing Sugar Beets in Three California Districts. Department Bulletin 760.

Sweet-Potato Growing. Farmers' Bulletin 999.

How to Control Billbugs Destructive to Cereal and Forage Crops. Farmers' Bulletin 1003.

The City Home Garden. Farmers' Bulletin 1044.

Official Grain Standards of the United States for Oats. Bureau of Markets Service and Regulatory Announcement No. 46.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FARMING EXHIBITS SHIPPED TO ARMY CAMPS IN FRANCE

Four carloads of exhibit material from the United States Department of Agriculture have been shipped from New York to American Expeditionary Forces general headquarters in France, where the material is to be divided into four sets and is to be exhibited at American Army camps. Four representatives of the Department of Agriculture, who are to be in charge of the exhibits, also have left New York.

The exhibits are sent through an agreement by the Department of Agriculture with the national war-work council of the Young Men's Christian Association, and are to be used by the war-work council in bringing agriculture to the attention of American soldiers in the general educational service which the war-work council is conducting. The displays will not only call the attention of soldiers to agriculture but will inform them of the service the Department of Agriculture offers in helping to develop profitable farming. Practically all the material in the exhibits is new, having been prepared especially for this purpose.

The exhibits were prepared under the direction of Prof. F. Lamson-Scribner, expert on exhibits. They consist of material representing the work of the following bureaus and offices: Weather, Plant Industry, Chemistry, Soils, Markets, Farm Management, Animal Industry, Public Roads, Division of Rural Engineering, Forest Service, and States Relation Service. The Department of Agriculture representatives with the exhibits are the following: A. A. Ormsby, Office of Exhibits, in charge of personnel and exhibits; F. L. Goll, Bureau of Plant Industry; C. A. Lindstrom, Forest Service; and B. L. Perkins, Bureau of Markets.

TRADING IN LIBERTY BONDS

[Furnished by the Federal Trade Commission.]

Get-rich-quick swindles have been the great American sport for years. The sharpers who sell fake stocks saw their game endangered when Uncle Sam started his great liberty loan campaigns.

But they are smart—these gentlemen who live by their wits.

Instead of complaining they jumped in and put themselves and all their employees to work trading their fake stuff for liberty bonds.

WATCH THE STOCK PEDDLERS

Readers: Get the names and addresses of all persons and companies offering you speculative or doubtful stocks and securities in exchange for your liberty bonds, with copies of their "literature." Mail them promptly for investigation to the Federal Trade Commission, Washington, D. C.

HELP THE VICTORY LIBERTY LOAN

If you have a liberty bond or a book of war savings stamps you are a "prospect" for fake stock. Your name is probably on the sucker list of the oily tongued sharper, because over 20,000,000 patriots bought liberty bonds.

You are not to blame for being on the sucker list, but it is up to you to get off—away off—that list at your first opportunity.

The American people are paying out some half billion dollars a year to the support of worthless stock schemes. The people reap therefrom $500,000,000 worth of—thin air.

That is not a wild guess. It is the estimate given by the Capital Issues Committee of the United States Treasury. And the committee assures us that it is conservative.

Moreover, the half billion represents just the cold cash that is turned in every year by otherwise level-headed Americans seeking a milk-and-honey path to quick wealth by the fake stock certificate route. It does not take into account the vast economic loss incident to broken fortunes, impaired effort of discouraged investors, and to the diversion from legitimate business enterprise of new productive capital.

The Capital Issues Committee, charged with keeping the Nation's investment dollars on a work-or-fight basis during the war, has made a searching inquiry into the devious byways of fraudulent stock promotion. Its conclusion is that never perhaps in the history of the country has wildcat practice been so flagrant—from coast to coast—as to-day.

As a result of the Government's great war-loan campaigns there are now hundreds of thousands of Americans converted to the idea of saving and investing. With a very great proportion their investment experience is limited to the good, rock-bottom Government war bond.

The fakir is after them. Thousands of "salesmen" carefully drilled in the gentle art of "selling on the first call" and getting out of town, are abroad.

They will tell you you were a patriot, a real citizen, to have bought liberty bonds. However, you've made your sacrifice, the war's over now—and really 4¼ per cent is no return at all in peace times—let us exchange your bonds for this exceptional offering positively guaranteed to bring in anywhere from 10 to 500 per cent in dividends before the year's out—as soon as the oil well is sunk, or the mine shaft completed, or the property developed, or the like.

That is the brand of the stock swindler to-day; that he is "willing"—as an accommodation to you, you understand—to "accept" your good liberty bonds in "exchange" for his worthless stuff.

Happily there is a Government agency to-day on the trail of the stock sharp. It is the Federal Trade Commission, empowered by Congress to prevent unfair methods of competition in interstate commerce. The commission may well be expected to look upon the fleecing of Americans of their liberty bonds as decidedly "unfair."

If you own a liberty bond you'll doubtless have an early call from one of the pleasant representatives of the sharper outfit. When you do, just drop a postal to the Federal Trade Commission, at Washington, and tell them about that visit and send them the attractive literature that is handed you, together with the name and home address of the "salesman."

All food, cooked or uncooked, should be kept in a clean, cool place in order to reduce the danger of infection to a minimum.

Hopes Congress Will Provide Funds For Agricultural Extension System

Answering an iuquiry originating in California, Secretary Houston has sent the following letter:

"Cooperative extension work in agriculture and home economics has been carried on in California and all the other States under the provisions of the act of Congress of May 8, 1914, known as the Smith-Lever Extension Act. The funds appropriated uuder this act have been supplemented by direct appropriations to this department for farmers' cooperative demonstration work, and during the past two years by war-emergency appropriations under the food-production act. The funds available for this work during the current fiscal year are as follows:

FEDERAL FUNDS.

Under the Smith-Lever Act	$2,580,000
For farmers' cooperative demonstration work	1,204,940
Under the food-production act	6,100,000
Total	9,884,940

STATE FUNDS.

Under the Smith-Lever Act	2,100,000
Miscellaneous	4,000,000
Total	6,100,000
Total available amount	15,984,940

"The State funds are contributed by the legislatures, counties, farm bureaus, and other local organizations and individuals within the States.

"These funds are used for the employment of county agricultural agents, home demonstration agents, boys' and girls' club leaders, and specialists in various branches of agriculture and home economics, and the necessary administrative officers. At present about 2,400 counties have agricultural agents and 1,400 counties have home demonstration agents. The people on fully half the farms of the country were reached by these agents last year and given practical instruction and advice regarding agriculture and household matters. About 2,000,000 boys aud girls were organized in clubs for the growing of plants or animals, canning or otherwise preserving the products of the farms and gardens, etc. Garden work was also done in many cities and home demonstration agents worked in about 200 cities.

Valuable as Peace Work

"The organization for this work was built up very rapidly after the United States entered the European w r, with the aid of emergency funds. Now that the war is over the question has arisen as to how far this organization should be maintained on a permanent basis. After careful consideration I came to the conclusion that the educational work which the extension forces are doing is very important for the promotion of our agricultural interests in times of peace, and also for aiding the farm women in solving their household problems, and for encouraging the boys and girls to remaiu on the farms. I therefore recommended to Congress that in lieu of the appropriations of $7,304,940 for farmers' cooperative demonstratiou work and emergency work, an appropriation of $5,670,000 should be made at this session of Congress for farmers' cooperative demonstration work during the next fiscal year, as indicated by the inclosed copy of the supplemental estimate. This is a gross reduction of $1,634,940; but since the Federal appropriation under the Smith-Lever Act will increase next year by $500,000, it is a net reduction of $1,134,940. This reduction had in view the elimination of temporary employees, and also of those who had proved unsatisfactory, and would result in the establishment of the extension work on a reasonably permanent basis. The House Committee on Agriculture, however, reduced this amount by $2,973,680, including in the bill as reported to the House three items for agricultural-extension work, as follows:

1. For farmers' cooperative demonstration work in the Northern and Western States	$551,280
2. For farmers' cooperative demonstration work in the Southern States	645,040
3. For cooperative agricultural extension work under the provisions of the Smith-Lever Act	1,500,000

The House accepted the reduction when the bill was under consideration in that body. The Senate Committee on Agriculture, however, in reporting the bill to the Senate, increased the item for cooperative agricultural extension work from $1,500,000 to $4,500,000, which, together with the amounts provided for the States of the South aud the States of the North and West, is approximately the amount I recommended to the House committee.

"Reduction Would Affect Work"

"If the reduction made by the House should stand the work throughout the country would be seriously affected. It would be necessary to withdraw agricultural agents from a large number of counties, and the home demonstration work, particularly in the Northern and Western States, where it is relatively new, would have to be largely discontinued. The boys' and girls' club work also would be materially reduced.

"The cooperative agricultural extension work has proved most valuable and helpful in all the States. Strong organizations have been perfected in the various counties and the men and women are cooperating in a satisfactory manner. It would be highly unfortunate to break dowu the organization, with its large force of trained workers, aud then undertake to build it up again through a series of years. I strougly hope that Congress will make adequate provision for the maintenance of this great educational system duriug the next fiscal year."

COOPERATIVE WORK PLANNED AT SWEET-POTATO CONFERENCE

The conference of pathologists and horticulturists held in Birmingham February 26 to 28, marked an epoch in the development of the sweet-potato industry of the South. While sweet potatoes have always been one of the most important food crops of the Southern States, there has been no concerted effort to stabilize the iudustry or to popularize the use of sweet potatoes in the northern markets.

Under the organization planned at the Birmingham conference every phase of the sweet-potato industry will be given careful consideration. The various problems affecting the industry will be investigated and the known conditions carried to the people through the medium of the extension forces. Iu addition to the promotion of the industry in the Southern States it is the plan of the orgauization to carry on a campaign for popularizing the use of southern-grown sweets throughout the country. Some of the ablest workers in the Southern States have offered their services and the campaign will be started with the coming planting season. Careful variety trials will be made to determine those varieties best adapted both for production and marketing. Insect and disease problems and the question of proper storage and marketing facilities will be studied.

The cooperating parties include the pathological workers, horticulturists, and marketing forces of the Southern States and the United States Department of Agriculture. It is the plan to conduct the work in at least six Southern States.

An abuudauce of ventilation is a necessity to health in every home. In most sections of the country the addition of sleeping porches will be found well worth while.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Agents and Other Workers, Federal and State, Are Doing to Spread This Message in Town and Country

Riding to College on Brooms; Home Workers in South Doing It

Broom making in some of the Southern States is being encouraged by the home demonstration agents of the United States Department of Agricuture and the State colleges. The home clubs in Alabama rank first in this work and in the past year some especially good records have been made in the State. The crowd which attends one of these broom-making demonstrations is such as to make the passer-by think an auction is being held in that particular yard.

Tuscaloosa County, Ala., grows broom corn with an unusually good brush and broom making has become so popular in that section that all the club members who didn't grow a patch last year are planning to do so this coming season. A broom-making machine has been bought by one community in the county and other localities have ordered machines for use next summer. With a machine, 25 brooms can be made in one day. Each member makes her own brooms and gives a fourth of her output for use of the machine.

The cost of making a broom in that part of the State is estimated to be 20 cents, with the wire thread, tacks, and handle costing about 12½ cents. Good hickory handles cost 8 cents apiece, while those of other woods cost 6 cents. In the near future Tuscaloosa County plans to manufacture the broom handles instead of buying them.

The community which possesses a broom-making machine has a source of steady income. While the broom work is planned primarily for the young people the older members of the family on cold rainy days and in winter find making these necessary household articles an easy way to add to the family income. At the present price of brooms fair wages can be made.

When a pupil learns to make perfect brooms, if she wishes to put them on the market she is permitted to label them as "Tuscaloosa Grown" and "Home Demonstration Club Broom." Some of the girls in the clubs are planning to earn money for normal school and college by broom work. Will they be termed witches if they ride to college on a broom?

The boys as well as the girls in the broom-corn sections are interested in the industry. One boy in Cherokee County, Ala., has been enabled to enter high school by the money he earned in making brooms. He has sold 60 at $1 each and has 200 more to make.

FOOD KNOWLEDGE FOR FOREIGN BORN

Faced here with new living conditions, new foods, and more money to spend for food, the foreign-born housewife is likely to serve her family with poorly balanced meals. Children particularly suffer from indigestibles easily procured and given them daily. Much work is being done this year among foreign-born housewives by the extension workers from the United States Department of Agriculture and the State colleges. Where it is necessary, interpreters are used to translate the demonstrator's message to the women, who are usually eager to learn American ways. Italian women particularly are devoted mothers and are anxious to know and to practice the best methods of caring for children.

Keep Cottage Cheese at Bat; as Good in Peace as in War

When it became necsesary to save meat last year, the American people both in town and country rediscovered an old dish—cottage cheese. Its food value being nearly equal pound for pound with meat, it was an invaluable aid in the conservation of meat. The continued use of this dairy product will be of permanent value for varying the diet and benefiting the health, and it is hoped it will not again drop into obscurity.

The following publications of the Department of Agriculture on the manufacture and use of cottage cheese may be obtained on application:

Cottage Cheese Dishes, Office of the Secretary Circular 109.

How to Make Cottage Cheese on the Farm, Farmers' Bulletin 850.

Manufacture of Cottage Cheese in Creameries and Milk Plants, Department Bulletin 576.

Ways to Use Cottage Cheese, Bureau of Animal Industry Leaflet 18.

Cottage Cheese; An Inexpensive Meat Substitute, Bureau of Animal Industry Leaflet 24.

Girls Raising More Chickens Than Boys in Florida Clubs

Thousands of chickens were added to Florida's supply of fowls last year by the efforts of the boys and girls who are doing club work in that State, supervised by the home demonstration agents of the United States Department of Agriculture and the State college. The bronze medal for the best individual record made by a girl went to Marie Bradfish, of St. Johns County. She set 179 eggs and raised 152 chickens, valued at $264.24. The expenses for raising the flock were $56.95, leaving a net profit of $207.29. Lloyd Townsend, of Baker Country, won the State bronze medal given to the boy who made the best individual report in the State. He raised 83 chickens, valued at $116.15, at a cost of $47.64. His net profit was $68.51. The girls in Florida apparently are outstripping the boys in the poultry-club work.

MAKING WOMEN'S WORK EASIER; DEMONSTRATION TASKS VARIED

For several years Uncle Sam, through the States Relations Service of the United States Department of Agriculture, has been sending home demonstration agents into the highways and byways to help housewives with their problems. Approximately 1,700 of these trained workers are in city or country, and the help they have been able to give is represented by a long list of activities varied to suit the section in which the agent works.

Some of their work, such as helping women retrim hats, may seem petty, important as a hat is to a woman, but in the aggregate the good from the work of the home-demonstration agents is believed to be tremendous.

Work of Many Kinds

In addition to the universal problems of feeding the family, baking prize-winning bread, canning vegetables, coaxing hens to lay, trimming hats, making fireless cookers, and bathing the baby properly, there has been the work growing out of war conditions—the use of substitutes for wheat, meat, fats, and sugar, how to save fuel, learning to make and use cottage cheese, Americanization, thrift, and loan campaigns, salvage of

clothing, Belgian relief, and a host of other activities.

Guided by the home demonstration agents, many women have learned to can and store all kinds of food; to prepare well-balanced, one-dish meals that save time and strength; and to rearrange their kitchens and add labor-saving machines; to establish community laundries, canneries, drying plants, and storage houses. In one county where there was no man county agent, the home demonstration agent planned and conducted a seed corn campaign, took the labor census, kept the records of the thrasher rings, and published a "Farm Bureau News."

Work in the West

The home demonstration agent in a western State showed farmers how to poison grasshoppers, secured positions for 20 workers, and found homes for 3 old people.

On a big reclamation project in Nevada the home demonstration agent found a group of women enduring the hardships of pioneering in an alkali country just made over by irrigation. After talking over various problems, this group decided that the thing they wanted most was some instruction in making dresses and hats. They said: "We can 'get by' in some fashion with the cooking, but we can not make good-looking clothes and hats," so they asked for a class in millinery.

"It was marvelous the way they took to the work," the home demonstration agent related. "Never before did I have such eager pupils. They came to my office and plied me with questions. I had classes twice a day and again at night. First we talked about textures, lines, and colors that make for becomingness, suitability, and durability. We made a sample hat on which they learned some of the stitches and the problems of hat making. They worked very industriously on this, for we had agreed we would not use new material until they had learned how to use the old. In the meantime we sent to Los Angeles for a consignment of millinery supplies on approval. These we got at cost, thus providing the material for becoming, suitable, and durable hats at small expense.

"There were incidents both amusing and pathetic. One woman, the mother of five children, said she had not had any dress-up clothes for years and that she thought it wasn't worth while for her to have a hat herself, so she'd just make some hats for the two little girls.

What a Hat Did

"I said, 'Mothers should be especially well dressed. I'll make your hat.' I made the best-looking hat I could. When it was finished I sent for her to come to see if it fitted. She was delighted with it, but she said 'It will make me look too young.' I straightened her collar, rearranged her hair, and set the hat above it, and she did look 10 years younger. Then she was afraid her husband would not like the hat. But a short time after she left the husband telephoned and said he had lost his former wife and a very good-looking young woman had come into his home and wanted to stay. He said 'I'd like to let the old one go and keep the new one.'

"The next week the club women said, 'Now, we have some good-looking hats and dresses, we want to learn your way of cooking.'

"The study of foods led the mothers to confer with the schoolteacher and later to assist in making plans for a hot dish for the school lunch. The help given during the 'flu' epidemic brought courses in invalid cookery and home nursing. Then, because one woman can not do everything for a whole county, and because the work develops the neighborly spirit, a school of instruction was organized to train volunteer workers from the community eager to help in other parts of the county."

POULTRY YIELDS $1.14 AN HOUR

A sideline for the farmer's wife which yields $1.14 for every hour she puts into it is worth the consideration of every farm woman. A Wabash County, Ind., woman has demonstrated that this amount can be made by keeping chickens. Last year the local county agent interested this woman in keeping a farm poultry flock, and as a result she produced a net profit of $172.24. She kept an accurate account of her work and found at the end of the season that she had received $1.14 an hour for the time she actually devoted to caring for her flock.

HIDES AND SKINS REPORTED

Stocks of hides and skins in the United States on December 31, 1918, are given by the Bureau of Markets in the first report on hides issued by the Department of Agriculture. Cattle hides, both domestic and foreign, amounted to 6,398,234 pieces; sheep and lamb skins totaled 14,132,229; pigskins, 260,461 pieces; and 1,440,961 pounds of strips. Horsehides, including fronts, butts, and shanks, amounted to 401,613 pieces; and calf and kipskins, 2,199,266 pieces.

Other skins included in the report are: Kangaroo and wallaby, 350,900 pieces; deer and elk, 241,147; goatskins, 7,043,039; kid, 329,780; and cabretta, 923,437 pieces. A total of 47,077 buffalo hides were reported in stock, of which 41,538 were heavy pieces. The report covers both domestic and foreign hides in raw stock and represents holdings of 1,856 concerns. There were 673 other firms who held no raw stocks or whose holdings were included in reports from central offices.

NEW QUEEN LEADS DAIRY HERD AT U. S. EXPERIMENT FARM

A new queen reigns in the herd of Holsteins on the Government experiment farm at Beltsville, Md. She is as unassuming and peace loving as any of her subjects, although she bears the name Calamity Wayne Pauline 2d, and has just completed a test in which she produced in a year more than 11 tons of milk. In 365 days she produced 22,547.8 pounds of milk, which averaged 3.805 per cent butter fat, the total fat being 855.4 pounds.

This animal was selected by dairy specialists of the United States Department of Agriculture from a Michigan herd in July, 1917. She was brought to the Beltsville farm, where she produced a heifer calf and was started on her test December 7, 1917, at the age of 8 years. The test was run through the coldest winter that section had experienced in 40 years, and a summer that was extremely hot. The test for advanced registry was conducted under the rules of the Holstein-Friesian Association. During the year the animal was handled by two different herdsmen.

A son of Calamity Wayne Pauline 2d has been placed at one of the Government substations and one of her half sisters is making a fine record at the Michigan Agricultural College. Calamity's 305-day record was 19,256.6 pounds of milk, averaging 3.7 per cent butter fat, making a total of 718.14 pounds of fat.

All the dairy cattle on the Beltsville farm are used for experimental purposes and will be given at least two advanced registry tests to determine their capacity for production.

Cold, damp, poorly lighted and ventilated poultry quarters favor the spread of such diseases as roup. Such contagious diseases as these are difficult and sometimes impossible to control unless given attention in the early stages. Wherever preventive measures fail, separate sick birds from the flock as soon as there is evidence of disease and then obtain expert advice to effect a cure.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

"Beating Swords Into Plowshares."

Uncle Sam now will use the raw stuff that was to blow Germany off the map for fertilizer. Instead of making high-explosive shells out of it he is putting it on the land to raise food and cotton. Over 150,000 tons of nitrate of soda, released by the War Department, is speeding from 18 United States shipping points to farmers via the Bureau of Markets, Department of Agriculture. In view of the uumber of orders for early shipment being received the nitrate distributors say that spring must be on the way. Farmers who did not want to accept deliveries in February now want immediate shipments, and the Bureau of Markets is trying to ship 100,000 tons this month.

Orders have already been issued from Washington for the shipment of over 75,000 tons in small lots, and Savannah and Wilmington report daily shipments of over 1,000 tons each. Announcement that all applications for nitrate will be filled for the full amount was made today, but it was pointed out that applicants should appreciate the impossibility of filling all orders simultaneously, though every effort is being made to have the nitrate reach all applicants in time for use this season.

Boys Swat Dogs, Buy Sheep.

For every dog kept a loss of $36.50 must be pocketed every year. For every sheep kept a profit of $27.60 may be pocketed every year.

At least, that is the way the proposition was itemized on the blackboard of a mountain schoolhouse by a farm-demontration agent in Kentucky. And the figures were convincing. There was not a sheep in the district at the time the figures were placed on the blackboard. Somebody said there used to be one sheep—a wether—"down the mountain a ways," but the dogs ate him.

A few weeks from the time the agent placed the figures on the board 15 boys each had contrived to buy a sheep. Eleven dogs had been killed. Several other families, pestered by their small sons, but still unwilling to kill their dogs, were trying to give the brutes away.

Similar movements were started at other schools. Now, in that district, there are 622 boys who are members of the sheep club. Among them they own nearly 2,665 sheep. By the tax returns, the dog population appears to have increased also, but the agent says this is not true. Formerly there was no sentiment for enforcement of the dog law, he says, but now there is a very strong sentiment that way, aud, while there has been a considerable decrease in the number of dogs, there is an apparent increase, because people who formerly evaded the dog tax now have to pay it.

Few Pink Bollworms Found.

Pink bollworm work in the Pecos Valley of Texas is being pushed by the United States Department of Agriculture. The War Department is cooperating by lending considerable equipment for housing labor, enabling the Federal Horticultural Board to add 300 laborers to the force.

Infestation in the Pecos Valley is limited to points near the two adjacent towus of Barstow and Pecos. Seven points of pink bollworm attack have beeu determined. The total number of larvae found up to February 9 was 14, all dead except 1. The clean-up work, however, will be exteuded over a considerable area beyond the infested points in order to remove any possible chance of perpetuation of the insect.

The isolation of the Pecos Valley district and the fact that the cottou in it is grown entirely under irrigation make it possible to pursue the clean-up operations with great efficiency. The further fact that the insect seems to have been largely killed by the freezes or early winter gives this district a different outlook from that of the infested regions in eastern Texas. Plans are being made to allow the growth of cotton uext season in this district under such supervision aud control as will permit the prompt safeguarding of any new outbreak of the iusect. Conditions give hope that the insect in this regiou will be thoroughly extermiuated soou.

"Dip That Tick Now."

"Dip that tick in March," the slogan that has been followed vigorously during March by the State and Federal fighters of the cattle fever tick, will become out of date April 1. A new slogan will take its place. It is "Dip that tick now." Posters bearing the iujuuction are already up iu many tick-infested sections. "Dipping uow" means dipping with the least possible delay. The sooner a steer is put through the dipping vat the sooner he will be free of the parasites that cause a direct annual loss of $40,000,000 and an indirect loss figured at twice as much by officials of the Bureau of Animal Industry, United States Department of Agriculture. And the sooner every head of cattle in an infested section is dipped the sooner that section becomes tick-free and ready for release from the Federal quarantine restricting the movement of cattle.

More Feed from Spur Feterita.

A new variety of feterita, developed by the Texas Experiment Station and tested by the United States Department of Agriculture, excels the common varieties of this crop in yield, leafiness, strength of stalk, and of all-round adaptability for southern culture. Spur feterita is less likely to lodge or fall dowu than the common varieties. It carries oue-third more leaves which are longer aud broader thau the common ones. On experimental plots in Texas iu 1916 it produced 8 bushels and in 1917 10 bushels more per acre than common feterita. The crop is planted in 36-inch to 42-inch rows, 5 to 7 pounds of seed being required per acre for planting. For forage, spur feterita is at least equal to milo, although it is perhaps excelled by the kafirs and sweet sorghums. For work horses, stock cattle, or fattening sheep, the crop can be fed directly from the bundle. It is about equal to the sorghums for use as silage. Farmers who grow this selected variety should exercise the greatest care in protecting the seed from contamination, in order to provide a future, pure-seed supply which will permit of its extension in the grain sorghum area of the United States. The Department of Agriculture has no seed of this new feterita for distribution, as arrangements already have been made for distributing all of the seed that is available.

Striving for "Early Birds."

The early bird—referring to poultry—uot only gets the worm, but seems to have every other advantage over the one that comes late. Upon early hatching largely depends the success of poultry keeping,

say specialists of the United States Department of Agriculture, who are now conducting a "Hatch early" campaign—one of the most important in the poultry program. Early hatched stock, they say, produce well-matured, vigorous pullets, which will begin laying in the fall and early winter, and it is only from such early-mating pullets that the best production and greatest profit can be secured. Early-hatched chicks also mean hens which grow broody earlier the next spring, and these in turn allow early hatching to be continued to a greater degree when natural methods of incubation are relied upon. This campaign has been pushed vigorously over the entire country during the past year, and it is being taken up again this spring. Reports from poultry specialists and other sources indicate that early hatching is being practiced much more generally this spring than ever before. Fewer early hatched pullets were marketed last fall than in previous years, indicating, the specialists say, that poultry raisers realize the value of their early hatched pullets and have held them for their own use.

Making Brooms at Home.

Well-made brooms command good prices, and in the Southern States where broom-corn grows well the home demonstration agents, under the supervision of the United States Department of Agriculture and the State colleges, are encouraging the growing of brush and the making of brooms. Alabama produces excellent broom corn, and the number of club girls in that State who are interested in this work is increasing. Broom machines, by which 25 to 30 brooms can be turned out in a day, are being bought in some of the communities where the work is well started. These are rented to the club members, who usually pay in brooms for the use of the machine. It costs about 20 cents to make a broom. When a girl has learned to make a perfect product she is allowed to use the label, "Home Demonstration Club Broom," on any she wishes to sell. Many of the club girls plan to pay college or normal school expenses with the proceeds from their broom work.

Working for Better Poultry.

Quality, as well as quantity, is the object of the poultry drive now being conducted by poultry specialists of the United States Department of Agriculture. Special emphasis was placed last year on increasing production. This being accomplished, the poultry specialists, working in cooperation with the State extension forces, now urge replacement of mongrel stock with standard-bred stock to improve both production and quality. The campaign really began last fall when decided interest in improved stock was shown by the number of undesirable birds culled from flocks in all parts of the country. The culling work done in Mississippi is illustrative of what has been done in many localities. The poultry specialist worked in nine counties and secured the culling of 1,349 flocks, from which 10,792 birds, weighing 25,900 pounds, were discarded as unprofitable producers. As can be seen from the extremely small average weight of the birds culled—2.4 pounds—the poultry stock in this section needed the culling. The eggs were small and inferior and did not have a good standing on the New Orleans market. As the culling campaign progressed, the poultry specialists urged the keeping of improved stock. Enough progress along this line has already been made to give Mississippi eggs a better reputation on the New Orleans market.

More Silos for Utah.

Seven years ago there were only four silos in Utah, while last summer the silo census showed over 400 of such feeding conveniences on Utah dairy farms. Representatives of the United States Department of Agriculture, working with State and local forces, hope to increase the total number of silos to 1,000 during 1919. As practically all these structures for the housing of canned corn are located on dairy farms, it is apparent that Utah, as a milk-farmer's State, is beginning to find herself.

For American Binder Twine.

American farmers use 200,000,000 pounds of binder twine a year, while an additional 100,000,000 pounds is necessary for the other grain-growing countries. Eighty per cent of the henequen used in the manufacture of twine comes from Yucatan and most of the sisal used in making twine also is imported from foreign countries. For the protection of American farming interests the United States Department of Agriculture is promoting the growing of sisal and henequen in the Philippine Islands, Hawaiian Islands, Porto Rico, and Florida in order that Uncle Sam's future supply of binder twine may be a "Made in America" product.

Will Study Codling Moth.

Laboratories for a thorough study of the codling moth in the apple-growing valleys of Washington are being established by the United States Department of Agriculture in cooperation with the Washington State Experiment Station. This region—one of the most important commercial apple sections of the United States, suffered unusually severe damage by the codling moth during the season of 1918, the loss being variously estimated at from $2,000,000 to $4,000,000. Particular attention will be given to life history investigations and to large-scale experiments in orchards. One of the laboratories will be located in the Yakima Valley and will be in charge of the United States Department of Agriculture. Two trained men from the Bureau of Entomology have been assigned to the work. Another laboratory, in charge of the Washington Experiment Station, will be established in the Wenatchee Valley. It is probable that other laboratories will be established, but the locations have not been determined.

Barberry Quarantine to Be Placed.

An excellent illustration of cooperative effort for the public good, even by interests adversely affected, was furnished by the barberry quarantine hearing held February 24 by the United States Department of Agriculture. Nurserymen with stocks of barberry that they might have sold, and individuals with cherished barberry hedges, it was shown, have given earnest and effective assistance in the work of eradication.

The evidence submitted at the hearing showed conclusively that the common barberry, with certain other varieties of barberry and Mahonia, are capable of harboring the black-stem rust of wheat and other small grains, that they constitute the only means by which the disease is communicated to grain fields throughout much of the grain-growing area of the country, and that the prevalence of the common barberry throughout this area has been responsible to a considerable degree for the severity of the epidemics of black-stem rust that have frequently caused enormous losses of wheat and other cereals.

As a result of the hearing quarantine measures have been drafted for the purpose of preventing the movement of susceptible species of the barberry and of Mahonia from other States of the Union to Nebraska, Iowa, Illinois, Indiana, Ohio, North Dakota, South Dakota, Minnesota, Kansas, Montana, Wisconsin, Michigan, Wyoming, Missouri, and Colorado. These States during the past year have been cooperating with the department in eradicating the common barberry.

Girls Herd Their Own Sheep.

"After paying all expenses, I cleared $1,240 from my sheep last year," reports

Hazel Jeffrey, a member of a sheep club organized in Fremont County, Wyo. Several years ago she bought the first of a flock and has handled her sheep so successfully that this winter they number 103 ewes. In 1918 her flock produced 79 lambs, 76 of which she raised. These, with 7 orphan lambs abandoned by sheep herders, constituted the year's increase. All the care the sheep require is given them by their girl owner. This spring she plans with part of her profits to buy 25 pure-bred Cotswold ewes in Nebraska and use them to start a pure-bred flock.

A girl in Sheridan County, Wyo., in 1918 cleared $923 with a flock of 48 ewes. During the coming season these two girls plan to throw their sheep together and to herd them themselves over the Big Horn Mountains. Orphan lambs discarded by other camps are also to be collected and cared for by the youthful herders. Members of the boys' and girls' sheep clubs in some of the Western States find the salvaging of "bum" or stray lambs an economical way of obtaining a start in the sheep-club work.

FARMERS AND BUSINESS MEN SHOULD WORK HAND IN HAND

(*Continued from page 3.*)

soil are taken each year tremendous quantities of food products which add in a material way to the total wealth of the country. Agricultural production should therefore be maintained, and in some cases increased, that it may give profitable employment to our farmers and at the same time furnish foodstuffs for millions of dependent people, both at home and abroad.

"The following statement of the Secretary of Agriculture is interesting and merits careful consideration: 'Farming must be profitable and society must be willing to pay the price. Under no other condition can farming expand. It means, too, that only as many will or need stay on farms as may be necessary to supply what the consumers will take at prices which will justify production. Many people speak as though they thought there should be no limit to the number engaged in agriculture or to production of crops. The farmer must consider his balance just as much as any other business man. The number of individuals remaining in the farming industry will, in the long run, continue to adjust itself roughly to the economic demand and will increase as it expands or as relative economics are effected.'

All Food Seems Needed

"At this time there are indications that every pound of food that can be produced on American farms will be needed. It is hoped, too, that fair prices will be received by the farmer for his products.

"At no time, however, has the farmer been called upon to give greater attention to the business side of his farming operations. In this day of high-priced land, labor, seed, fertilizers, machinery, and other materials and equipment utilized in farm operations, careful attention must be given to economical production. The industrial plants have found it necessary to introduce the cost accounting system in order that the cost of each part manufactured may be determined. Competition has forced manufacturers to adopt efficient methods and practices. In the same way farmers must conduct their business and know more definitely the desirable and profitable lines of production. The following illustration will emphasize this point.

"One farmer in central Indiana operating 210 acres of prairie land valued at $250 an acre increased his 'labor income,' or his net income above expenses and interest on his capital, from a minus $385 the first year to $1,371, $2,675, and $7,129, respectively, the following three years. While much of the increase in income from the first to the second year was due to a better season and some of the increases thereafter due to better prices received for products, a large part of it can be attributed to the fact that the farmer found the weakness in his farm business and 'soldered up the leak.'

A Leak Discovered

In 1914 an analysis of many farms in this man's neighborhood showed that there, as in other places, in order to be most efficiently operated a farm needed, first, good size; second, a large amount of stock; third, good returns from live stock; and fourth, good crop yields. The business of the farmer mentioned was compared to the average of his neighbors in regard to these important factors influencing profits. The comparison showed that he had a farm slightly larger than the average, had crop yields 17 per cent better than his neighbors, and that his farm was much better stocked. Still, with all these good qualities he was not making 5 per cent interest on his investment. Further comparison showed the reason. For each $100 worth of feed fed to his live stock he was getting back only $113 returns, as compared to $132 for the average of his neighbors. Here was the big leak in his farm business, for he kept a large amount of stock. The cause of the weakness was obvious when it was pointed out that outside of a very few dollars' worth of purchased concentrates he was feeding practically nothing except corn, oats, stover, oat straw, and timothy hay, all of which were low in protein. He needed some protein feed to go with these feeds to form a balanced ration. Also, with the large number of cattle it was not economical to be without a silo.

"Determining to overcome these weaknesses, he put up a silo in the fall of the second year. It was rather late to show results on his feeding that year, but his live-stock receipts per $100 worth of feed increased to $127. The second year's analysis showed that this was still the limiting factor in his farm business. The third year he bought cottonseed meal and fed clover hay with his other feeds to form a better-balanced ration. The value of this better combination of feeds was so apparent that in a short time he purchased still more stock. His receipts per $100 worth of feed were $187. The fourth year he fed even more stock, and with the good feeding his returns from feed continued high. He was above the average of his community in all four of the important conditions influencing profits, the only record to show these results. He had strengthened the weak horse in his four-horse team. His labor income was $7,129.

Bankers' Help for Farmers

"Each individual farm will bear study and will yield results as the operators determine the best methods and practices. Bankers should aid farmers in making a more careful study of their operations and assist in determining the desirable and profitable lines to be followed.

"Attention is called to the unrest that exists in all sections of the country, and it is realized that the farmer is affected as are other classes. There have been many vital changes in this country since the signing of the armistice. November 11 marked the time for reversion in many national activities. The work of mobilizing, equipping, training, and transporting a mammoth army was turned to that of demobilization; the turning back of men to the farms and industry. Construction of cantonments was halted and immediately many of these were torn down and abandoned. Large industrial plants operating full time for the manufacture of war equipment and munitions have turned from this work to the manufacture of peace-time products. The country, as a whole, is required to change from war-time activities to a peace-time basis. Such changes affect prices, wages, and living in general to an extent that people are more or less disturbed and exhibit an interest in the outcome.

"As one result farmers' organizations are being formed in all parts of the country to study the situation and give such

support as is needed for the farming interests. These should be encouraged and business men should lend them assistance and cooperation. These organizations are not for the purpose of securing undue advantages for farmers, but are conducted in the interest of the communities and States in which they are located. Any organization conducted for selfish purposes is doomed to failure. Agricultural organizations should give attention to those problems which relate to the development of a strong and permanent agriculture and a satisfying country life.

Towns Depend on Farms

"Farmers are as deeply interested in the local village and town as are the business and other people who live there. The majority of these centers have been located and have developed as the result of the demands of country people. When the new sections were settled there were demands for a store, a blacksmith shop, a bank, an elevator, and other business institutions. These, with the school and the church, formed the nucleus of the town which has served as the center for trading and social life. If one of these vital centers were destroyed by fire, flood, or wind, or in any other way, it would be immediately reestablished, because it serves an absolute need. The town is there to satisfy the needs of the people. Should they not then organize to make it better and protect in every way its best interests?

"Individuals or groups of individuals who undertake to separate themselves and their interests from those of the town are breaking down that which has required years to build. Existing barriers between town and country should be removed. The farmers and business men must work hand in hand for the development of agriculture, the building of roads, schools, and churches, and the establishing of strong, adequate, and attractive community centers."

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for field agent, for men only, on April 23 and 24, 1919. Vacancies in the Bureau of Crop Estimates, Department of Agriculture, for duty in the field, at entrance salaries ranging from $1,600 to $2,400 a year will be filled from this examination.

Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

CLEAN, SOUND WHEAT SEED WILL HELP STOP EELWORMS

Salt Brine Treatment and Rotations of Crops Also Advised

Infection Caused Losses Last Year in Four States; Tiny Nematodes Cause Galls Often Mistaken for Bunt

Eelworm infection of wheat caused a 25 to 40 percent damage in some sections of Virginia last year, while grain fields in Maryland, West Virginia, and Georgia also were attacked, states the United States Department of Agriculture in Farmers' Bulletin 1041, recently published. The disease is caused by tiny worms called eelworms or nematodes. The larvae, or young worms, cause dark, hard galls to form in the wheat heads in place of the good kernels. These galls are often mistaken for bunt or stinking smut.

In the winter or spring the young eelworms escape into the soil from galls which have fallen to the ground or which were sown with the diseased wheat seed. Thence they reach the yound seedlings, and, as the plants grow, they are carried up to the young flowers, where they produce galls. Within these flower galls the larvae mature, deposit eggs and again produce destructive larvae.

Control Not Difficult

Control of the eelworm in wheat is not difficult, according to specialists of the department, who urge the use of clean, sound wheat seed secured from fields free of infection. If disease-free seed is not obtainable, say these experts, the galls may be separated from the wheat kernels by the salt brine method, which consists in dissolving 40 pounds of common salt in 25 gallons of water and then pouring the diesased seed slowly into this solution, stirring vigorously at the same time. The sound wheat kernels will sink, while the nematode galls, light kernels and trash will float, so that this foreign material can be skimmed off. This skimmed-off matter should be rinsed in water to remove the salt, and then plunged into boiling water to kill the eelworms, in which condition the material is valuable for poultry food. It is always essential to subject the skimmings to the hot-water treatment in order to destroy the eelworms, no matter what disposition is subsequently made of this material.

After the salt brine treatment the seed should be rinsed in water and then be spread out to dry on a floor or a canvas where it can be stirred occasionally. When thoroughly dry the wheat seed is ready for planting. Caution should always be exercised not to expose the wet seed grain to freezing and care should be taken to prevent stock and poultry from drinking the salt brine.

Rotation Advised

Land on which nematode-infested wheat has been grown should be planted to other crops for two, or better still, three years. During this time the eelworms will be so starved out that subsequent crops of wheat grown from clean seed are likely to be free, or almost so, from the infection. Any crop may be used in the rotation, since only wheat is known to be seriously attacked by the disease. Care should be taken to prevent the spread of the nematodes from one field to another by means of infested soil, which may cling to the feet of men or animals, or to various kinds of farm implements. Surface waters, which may carry galls or the free nematodes, should not be permitted to pass from infested soils to uninfested areas. Deep plowing under of the stubble directly after harvest lessens the spread of the disease either to nearby fields or within the same field.

Wants Men for Work in Dyes; to Make Appointments Soon

The color laboratory of the Bureau of Chemistry, United States Department of Agriculture, desires to obtain men experienced in the art of dyeing and the use of colors.

The duties will involve examination and testing of dyes with a view to determining their color values and methods of utilization.

A civil-service examination to obtain men for this work will be announced shortly. In the meantime, appointments of persons suitably qualified can be made on a temporary basis, pending the applicant's qualification under the civil-service examination. Salaries will range from $1,440 to $2,280, depending upon the education, training, and experience of the applicant.

Applications for temporary appointment should be made to the Bureau of Chemistry, Department of Agriculture, Washington, D. C.

The first requisite in the care of food is absolute cleanliness in the storage place. This is not to be attained by the use of soap and water alone. Fresh air, sunshine, and whitewash or paint are important aids.

Choose Sorghum Varieties Adapted to Climatic Conditions, Specialists Advise

Agricultural writers are emphasizing more and more the desirability of overcoming adverse climatic conditions by a wise choice of crops rather than attempting to create more favorable conditions by means of irrigation and improved methods of culture. In no part of the United States is the wisdom of this advice more often confirmed than in the semiarid portion of the Great Plains where the rainfall is so undependable, according to specialists of the United States Department of Agriculture. The sweet sorghum introduced from South Africa in 1857 and the kafirs and milos over 20 years later are being recognized as the crop basis of a permanent system of agriculture. Within these groups are many varieties differing in their ability to endure droughts or to respond to abundant rains with increased yields. An intelligent selection of varieties is the best insurance against failure.

The following sorghum varieties are recommended by specialists of the department:-

Between 100th and 105th Meridians

Texas, Oklahoma, and New Mexico.—For grain: Dwarf milo with a small acreage of feterita as an insurance against extreme drought. For forage: Sumac, Orange, and Red Amber sorgos, and Blackhull kafir.

Kansas, Colorado, and Southern Nebraska.—For grain: Dwarf milo, feterita, and freed sorgo. For forage: Red Amber, Minnesota Amber, and Blackhull kafir.

Wyoming, South Dakota, and north of latitude 41° in Nebraska.—For grain: Early varieties of corn and the small grains, such as barley and oats, are preferable to the sorghums. For forage: Red Amber, Minnesota Amber, and Dakota Amber.

Between 98th and 100th Meridians

Texas and Oklahoma.—For grain: Blackhull kafir with Dwarf kafir and Dwarf milo more valuable on the western edge. For forage: Sumac, Orange, and Red Amber sorgos, and Blackhull kafir.

Kansas.—For grain: In the south half Blackhull kafir, in the north part Pink kafir, Dwarf kafir, and early varieties of corn. For forage: Red Amber and Orange sorgos, and Blackhull kafir.

Between 95th and 98th Meridians

Texas, Oklahoma, and Kansas.—For grain: Corn is more generally grown than the sorghums, although Blackhull kafir will outyield corn on all but the rich, river-bottom soils. Dwarf hegari, a new variety of sorghum, yields well in this belt in Texas. For forage: In Texas and Oklahoma Sumac, Honey (Japanese Seeded-ribbon cane), Gooseneck (Texas Seeded-ribbon cane), and Orange sorgos, and Blackhull kafir. In Kansas Orange and Red Amber sorgos, and Blackhull kafir.

Between the ninety-eighth and one hundred and fifth meridians from the southern boundary of North Dakota to the Mexican line Sudan grass is the best annual hay grass, although millet is also extensively grown as an emergency hay crop.

New Mexico, Arizona, and Southern California, in the hot interior valleys.—For grain: Dwarf milo, feterita, and Dwarf hegari. For forage: Sumac, Honey, Gooseneck, and Orange sorgos, and Sudan grass.

In the Southeastern States, Arkansas, Louisiana, Kentucky, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Florida, and also southern Missouri, the sorghums are of no importance as grain crops, but are grown to a considerable degree for forage and sirup. Sumac, Orange, and Honey are the best varieties. Sudan grass is valuable as an annual hay grass.

SOLDIERS RETURN TO FARMS, DEPARTMENT REPORTS SHOW

(Continued from page 1.)

culture for city life. Reports from farm-help specialists, county agents, and other agricultural people indicate that the large majority of men who came from the farms and who are given any reasonable opportunity are again taking up this work. It is found, too, that the large body of men who left the farms to take up war work in connection with the building of cantonments, war industries, etc., are returning to the farms in large numbers.

"Farmers are offering good wages, in many cases a partnership in the farm business, and are building suitable homes and supplying better living conditions. All of this is appealing to men who have experienced hardships in the city as a result of poor living conditions, high cost of living, and other unusual expenses.

"For a number of years farms have been short of labor. Much work has been allowed to go undone. There is now an opportunity for farmers to get a supply of labor which can be used in placing drains, building fences, clearing lands, repairing buildings, and in other ways making improvements and placing the farm in the condition in which they wish to see it."

HOPE FOR SCRUB-FREE U. S.; BULL ASSOCIATIONS WORKING

Bull associations, though few in number, wage eternal warfare on the scrub. The scrub bull has done much damage in this country. He is worse than worthless. He lowers the production of all future generations of the herd he heads. He can not increase milk production even in a herd of scrubs because, like them, he is a scrub. In a herd of better breeding the damage he may do is almost limitless.

The grade bull is little better because most of his ancestors being scrubs, he is certain to transmit scrub qualities to his offspring. The grade bull may have the form and color markings of a purebred, but he lacks the power to transmit with any degree of certainty the qualities of any high producing ancestors he may have. That herd is very poor indeed in which a grade bull can make any marked improvement.

The registered scrub comes of low-producing registered ancestors, therefore he transmits only inferior qualities to his calves. Registration is not enough to guarantee production. Permanent dairy herd improvement can never come from the scrub, the grade, or the registered scrub.

A constant fight against the cattle fever tick has put large portions of the Southern States into the tick-free area. Why not inaugurate a similar fight all over the United States, ask specialists of the United States Department of Agriculture, against the scrub, the grade, the registered scrub—against scrub sires of every kind? Taking each State, county by county, why not eliminate the scrub, and establish scrub-free areas in every State?

"We expect," the specialists say, "sometime to make a map of the United States, showing the areas that are free of scrub sires, and on that map we hope eventually to mark all parts of every State as being in the scrub-free area."

In considering the breed of chickens best suited for the home flock, pay little or no attention to those which are not of local importance that is, not being raised successfully in the community, except on the advice of experts.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI APRIL 9, 1919 No. 36

More Highway Construction in 1919 Than Any Past Year, Secretary Sees

Machinery to Execute Big Program Is Ready; Freight Rates Decision Expected Soon

Regulations Under Federal Aid Act Revised; Other Changes Made to Speed up Building of Good Roads

Many important steps have been taken to expedite road construction under the enlarged program recently authorized by Congress, and the indications are that a larger volume of highway construction will be accomplished this season than in any previous year in the history of the Nation, according to a statement recently issued by David F. Houston, Secretary of Agriculture.

The requisite official machinery, says the Secretary, for executing this program—that is, the Department of Agriculture, through the Bureau of Public Roads on the one hand, and the 48 State highway departments on the other—is already in existence. A conference was held by the Secretary on March 1 with the State highway commissioners of the Eastern and Middle Western States and all phases of the problem, and especially the interpretation of the liberal amendments of the Federal aid road act, were considered. The regulations issued under the act have been carefully revised in the light of past experience and of the suggestions offered by the State highway departments, the standards for plans, specifications, and estimates have been modified to meet special conditions existing in some of the States, and other changes in practices and procedure have been and are being made—all with the definite object of speeding up the work. The appointment of Thomas H. MacDonald, chief engineer of the Iowa State Highway Commission, as engineer in immediate charge of the work of the Bureau of Public Roads under the Federal aid road act, has just been announced by the Secretary, and it is planned that, in the near future, Mr. MacDonald will formally assume the position of Director of the Bureau of Public Roads.

Freight Rates an Obstacle

It developed at the conference on March 1 that the present freight rates are one of the principal obstacles to the active resumption and extension of highway activities. The situation was laid before the proper officials of the Railroad Administration on March 1 by representatives of the Department of Agriculture and of the State highway officials. They were given a sympathetic hearing, and the question is now under active consideration by the Railroad Administration. It is hoped that a favorable decision will be made in the near future. Secretary Houston also has taken up with the Secretary of War the question of releasing from the Army highway engineers in this country and abroad, in order that their services may be utilized during the coming road-construction season.

The Secretary's statement, in full, is as follows:

"During the war it was necessary to curtail road-construction operations because of the difficulties of securing transportation, materials, and the requisite services. Now that the situation has changed, the work will be actively resumed and vigorously prosecuted, notwithstanding the fact that conditions are still abnormal in some respects, especially with reference to the prices of materials and supplies. It is not believed that the people of the Nation can wait for prices to recede before beginning industrial operations. Such hesitation will add to the difficulties instead of lightening them.

(Continued on page 11)

NEW ROADS OFFICIAL NAMED IN CHARGE OF HIGHWAY WORK

MacDonald, of Iowa, to Direct Operations Under Federal Aid Act

Expected to Assume Soon Duties of Head of Bureau; Construction to Be Resumed and Expedited by Cooperation

Thomas H. MacDonald, chief engineer of the Iowa State Highway Commission, has been appointed by the Secretary of Agriculture as engineer in immediate charge of the work under the Federal aid road act, which provides for cooperation between the States and the Federal Government in the construction and improvement of roads.

Mr. MacDonald will assume his new duties as soon as he can close up his work in Iowa. In the meantime he will continue to keep in close touch with the Federal-aid road work of the department, as he has done during the past two or three months. Steps already have been taken to expedite the resumption and extension of highway construction under the terms of the Federal law, as amended by the Post Office appropriation act, and nothing will be omitted to facilitate the vigorous prosecution of the work.

To Speed Up Work

The regulations have been carefully revised in the light of past experience and of suggestions offered by the State Highway Departments, the standards for plans, specifications, and estimates have been modified to meet special conditions existing in some of the States, and other changes in practices and procedure have been made, all with the definite object of speeding up the work.

Mr. MacDonald will immediately supervise and direct all the activities of the Bureau of Public Roads under the Federal aid road act, including the expenditure of the additional appropriation of $209,000,000 provided by the Post Office appropriation act for the extension and

development of highway construction during the present and the next two fiscal years. For the time being, in the midst of the pressure incident to the resumption and extension of road work, Mr. MacDonald will devote his energies to problems arising under the Federal aid road act. It is planned that, in the near future, he will formally assume the position of Director of the Bureau of Public Roads, made vacant by the death of Logan Waller Page.

New Official's Experience

Mr. MacDonald was graduated from the Iowa State College in the civil engineering course and was employed by the Chicago Great Western Railroad for a time on track work. In 1904 he became assistant professor of civil engineering at the Iowa State College and was placed in charge of road investigation work. In 1906 he was appointed highway engineer with the first highway commission in Iowa and held this position until 1913, when he was made chief engineer of the present State Highway Commission. He is also supervisor of State roads, having charge of all highways and streets adjoining or upon State farms, State institutions, and the State capitol at Des Moines. He is a member of the executive committee of the American Association of State Highway Officials.

Mr. MacDonald's broad knowledge of and wide experience in highway construction matters peculiarly qualify him for the very important task of directing the activities of the Federal Government under the road act, in cooperation with the State highway commissions of the various States, and of supervising the expenditure of the large sums that are now available for this purpose.

HIDES AND SKINS FEWER

Decreased stocks of hides and skins in the United States on January 31, compared with those held on December 31, are shown in the monthly report on hides issued by the Bureau of Markets, Department of Agriculture.

Stocks on January 31 were: Cattle hides, domestic and foreign, 5,601,700 pieces; sheep and lamb skins, 6,835,383; pigskins, 165,732 pieces and 1,306,997 pounds of strips; horsehides—whole 86,611, fronts 18,258, butts 120,318 pairs, and shanks 132,959; calf and kip skins, 1,745,995; kangaroo and wallaby, 353,161; deer and elk, 232,957; goatskins, 4,238,026; kid, 241,554; cabretta, 601,686; and buffalo hides, 44,664 pieces. Detailed reports showing by classes domestic and foreign stocks in the United States can be secured from the Bureau of Markets at Washington.

This Is a Mighty Good Time for Everybody to Learn to Know Beans

Beans—plenty of them at prices much lower than last year—are ready to replace higher-priced foods in America's meals. Only last year the cartoonists were having fun with the humble bean, for it, too, was skyrocketing in price, but to-day it's down—way down below last year's prices, and there's joy in other places than Boston.

Reports on bean prices from the Bureau of Markets, Department of Agriculture, show that beans have dropped 3 to 7 cents a pound at wholesale since March last year, and in California growers are saying that they will not sell if beans go any lower at shipping points. Plentiful supplies are reported in producing sections, and retailers are already selling beans at reduced prices in many cities.

Likings Are Various

If folks are really going to swat Old Man H. C. L. with low-priced beans, officials say, it will result in the use of more catsup and chili sauce, which means more tomatoes and peppers, although some prefer 'em with molasses and others with vinegar. Of course, "Boston baked" will come into its own.

It is always possible to arouse a discussion over baked beans, for some like them cooked fairly dry, while others like them moist; some like molasses in them and some do not. Each family should try different kinds and then stick to the one it likes best. To most New Englanders "Boston Baked Beans" means beans cooked in a covered bean pot for a long time, which are very moist when done and which have been seasoned with a little molasses.

Here is a recipe which is such an old favorite that it needs no recommendation.

Boston Baked Beans

Soak 1 quart beans and cook until tender, but not so soft that they will fall apart. If desired, ¼ pound of salt pork may be cooked with them. When tender, add ½ teaspoon mustard, 1 tablespoon sugar or 2 tablespoons molasses, and 1 tablespoon salt. Bake in a covered dish for 1½ hours, leaving them uncovered for the last 15 minutes.

If you have any beans left over why not make a loaf that you can serve for dinner in place of meat?

Instead-of-Meat Loaf

2 cups cooked beans.
1 cup cooked rice.
1 cup bread crumbs.
1 egg.
1 tablespoon fat.
½ teaspoon salt or 1 teaspoon if the rice is unsalted.
⅛ teaspoon paprika.

Put the beans through a sieve or grind in a meat grinder. Mix all the ingredients well. Form into a loaf and bake until brown. Or croquettes may be formed, rolled in bread crumbs and browned in the oven. Baste frequently with small amounts of liquid containing a tablespoon of fat to a cup of hot water.

If you don't "know beans" try these recipes and find out how good they are.

SWEET POTATO CROP DOUBLES ITS FARM VALUE IN 10 YEARS

Irish potatoes, as a commercial crop, have a rapidly growing rival in sweet potatoes. Within the last 10 years the farm value of the latter crop in this country has doubled and now is second only to Irish potatoes in commercial importance. To assist growers who are not familiar with the culture and storage of sweet potatoes, the United States Department of Agriculture has recently published Farmers' Bulletin 999, "Sweet Potato Growing," which discusses the subject from the preparation of the soil and growing of the plants to harvesting, storing, and marketing the crop.

Sweet potatoes can be grown under a wide range of conditions for home use, says the bulletin, but when they are to be produced commercially, careful consideration should be given to the necessity of suitable soil, favorable climate, accessible market, ample transportation, and proper storage. Storage is of great importance, for if the crop is improperly cured and stored it will decay rapidly, and the whole year's work will be lost. But it is possible by improved methods to hold sweet potatoes for several months at practically no loss.

This crop is propagated by plants produced by sprouting sweet potatoes in warm sand. Potatoes from which the plants are to be grown should be planted in early spring in hotbeds. In the South, where no bottom heat is necessary, cold frames may be used successfully. Good plants are necessary for a successful crop, for a big harvest depends largely upon the way the plants start off after being removed from the plant bed and set in the field or garden.

Mechanically the experimental stage for the motor truck has passed. Its worth and its efficiency have been demonstrated very thoroughly under the most trying circumstances.

Factors Influencing Wheat Grades Told By Federal Grain Supervisor

Analysis of 750 samples of hard red spring wheat by the office of Federal grain supervision at Minneapolis, extending over a period from July 15, 1918, the date the revised Federal grades became effective, to January 6, 1919, throw an interesting light on the effect the chief factors considered in determining the grades have toward lowering the grades, says a statement by Rollin E. Smith, Federal grain supervisor, of the Bureau of Markets, United States Department of Agriculture.

The results of the analyses are shown in the following table, giving the percentage of cars that fell into the No. 1, No. 2, and the lower grades under the several tests:

	No. 1.	No. 2.	Lower.
	Per ct.	*Per ct.*	*Per ct.*
Moisture test	85.2	7.3	7.5
Test weight, per bushel	86.2	10.2	3.6
Damaged kernels	72.6	20.3	7.1
Foreign material, other than dockage	80.9	14.1	5.0
Foreign material, other than cereal grains	84.4	11.7	3.9
Cereal grains	92.1	5.6	2.3
Wheat of other classes	95.3	1.3	3.4

In occasional seasons when the crop is damaged over a large area, as it sometimes is, by rust or hot winds when the wheat is in the soft-dough stage, the test weight per bushel is the chief factor in determining the grade. Yet all the other factors mentioned may be "contributing influences"—they are, in fact, every season, and their effect is more constant, or less variable, than the test weights and perhaps the moisture test.

1918 Spring-Wheat Average

The spring-wheat crop of the harvest of 1918 may fairly be called an average one in quality and condition; therefore the grade-determining factors mentioned above, as to their importance in lowering the grade, should be of particular interest, because of their operation under the comparatively new Federal grades for wheat. A report on the grading and analysis of several hundred samples of hard red spring wheat by the office of Federal grain supervision at Minneapolis gives the first opportunity for such observation and comparison available up to the present time.

Moisture test.—Hard red spring wheat containing 14 per cent or less of moisture falls in the No. 1 grade for the three subclasses on this test alone. Of the samples tested, 44.5 per cent contained 13 per cent or less, while 40.7 per cent contained 13.1 to 14 per cent. Therefore 85.2 per cent of the samples graded No. 1 on this test. Seven and three-tenths per cent graded No. 2 on a moisture content of 14.1 to 14.5 per cent, 4.3 per cent No. 3 on a moisture content of 14.6 to 15 per cent. The remaining 3.2 per cent of the samples tested dropped into No. 4 or lower, because of a moisture content of 16 per cent or greater.

Test weight per bushel.—On this grade requirement 71.2 per cent of the samples showed a test weight per measured bushel of 58½ pounds, while 15 per cent tested 58 to 58¼ pounds; or 86.2 per cent tested 58 pounds or better. As the grade requirement for No. 1 of the three subclasses of hard red spring wheat is that it "shall have a test weight of at least 58 pounds," it appears that 86.2 per cent of the several hundred samples tested graded No. 1. Therefore only 13.8 per cent fell below that grade because of the test weight per bushel. And as the taking of the samples was distributed throughout the period in which the bulk of the crop moves, it may safely be assumed that the samples were representative of the entire spring-wheat crop of Minnesota and the Dakotas.

The 13.8 per cent of the samples that tested below 58 pounds fell into the lower grades as follows: No. 2, 10.2 per cent; No. 3, 3 per cent; No. 4 and lower, 0.6 per cent.

Damaged kernels.—The percentage by weight of the total of damaged kernels found in the samples noted above was a factor in influencing the grade as follows (the No. 1 grade of the subclass of hard red spring wheat "may contain not more than 2 per cent of damaged kernels"):

Free from damaged kernels, 2.4 per cent of the samples; containing 0.5 per cent or less of damaged kernels, 29.5 per cent of the samples; containing from 0.6 to 1 per cent of damaged kernels, 20 per cent of the samples; containing from 1.1 to 2 per cent of damaged kernels, 20.7 per cent of the samples.

This gives a total of 72.6 per cent of the samples analyzed that graded No. 1, while 27.4 per cent fell into the No. 2 grade or lower because of damaged kernels. The amount of No. 2 was 20.3 per cent and of No. 3, 5.5 per cent.

Foreign material other than dockage.—Under this grade requirement No. 1 "may contain not more than 1 per cent." The results of the analysis of the samples under consideration were as follows:

Free from such foreign material, 2.1 per cent of the samples.

Containing not to exceed 1 per cent, 78.8 per cent of the samples.

Thus 80.9 per cent of the samples graded No. 1 on this grade requirement.

Containing from 1.1 to 2 per cent, 14.1 per cent of the samples, which fell into the No. 2 grade, making a total of 95 per cent of the samples in No. 1 and No. 2. The other 5 per cent were distributed among the lower grades.

Foreign material other than cereal grains.—No. 1 "may contain not more than 0.5 of 1 per cent of matter other than cereal grains." The percentage of the hard red spring wheat samples analyzed which were free from material other than cereal grains was 7.9, while 76.5 per cent of the samples contained 0.5 per cent or less. Thus 84.4 per cent of the samples were eligible for the No. 1 grade on this test; 11.7 per cent of the samples fell into the No. 2 grade, 3 per cent in the No. 3, and 0.9 per cent in the No. 4 and lower.

Cereal grains.—Seventeen and five-tenths per cent of the samples were found to be free from other grains, 57.7 per cent contained 0.5 per cent or less, while 16.9 per cent contained from 0.6 to 1 per cent. As 1 per cent is the limit permitted in No. 1 wheat of the subclasses of hard red spring, all of the foregoing, or 92.1 per cent of the samples, graded No. 1 on this test; 5.6 per cent fell into the No. 2 grade.

Wheat of other classes.—Under this test 95.3 per cent of the samples graded No. 1, 1.3 per cent No. 2, and 3.4 per cent mixed wheat.

Smutty.—Thirty-three and three-tenths per cent of all the samples analyzed graded smutty; 15.3 per cent were smutty on both factors, i. e., smut balls and odor; 13.7 per cent on smut balls only; and 4.3 per cent on odor only.

Conclusion.—The conclusion from the results of the analysis of the several hundred samples of wheat in the Federal grain supervision offices at Minneapolis must be that, in a season of average quality of the crop, the factors noted above are not important in lowering the grade.

As soon as similar figures are available at the principal winter-wheat markets statistics on winter-wheat grading corresponding to the foregoing will be published.

Total Minneapolis Receipts Graded

The records of the Minnesota State inspection department at Minneapolis show that, from July 15, 1918, to Decem-

ber 31, 49,250 cars of hard red spring wheat were inspected.

These cars were divided by the inspection into the three subclasses, as follows:

Subclass.	Per cent.
Dark northern spring	23.80
Northern spring	72.80
Red spring	3.40
	100.00

Irrespective of the subclasses, the 49,250 cars were divided among the different grades, by percentages, as follows:

Grade.	Per cent.
No. 1	71.90
No. 2	14.40
No. 3	8.10
No. 4	3.00
No. 5	.80
Sample	1.80
	100.00

Thus it is seen that 71.90 per cent of the 49,250 cars of hard red spring wheat inspected graded No. 1, and 14.40 per cent No. 2, while 13.70 per cent fell into the lower grades.

Working to Eliminate Doors That Provoke Users Thereof

Doors that sag in the middle like a hammock, doors that swell and refuse to be closed, doors that emit loud shrieks or groans whenever they are pulled or pushed, doors that provoke profanity, will be largely eliminated if work now going forward at the forest products laboratory of the Forest Service, at Madison, Wis., is fully successful and is fully followed by manufacturers.

The laboratory is studying improved methods of manufacturing doors in cooperation with a wholesale association. Various makes of doors are to be tested for strength and for the effect of humidity in warping the wood.

Every individual in the home poultry flock should show vigor and strength. Size (not fat), erectness, activity, bright eye, and red comb are favorable points indicating good constitution. Drooping tail or wing, weakened legs, head and neck not erect denote weakness. Pullets bred from good layers are preferable. A good layer will be a hearty feeder and usually a vigorous worker. Pullets hatched early will prove better winter layers.

Wheat Smut Largely Spread by Bad Seed; Disease Described from Field to Mill

Smut is a fungous disease that causes an annual loss of millions of dollars to the wheat growers of the Central West, the spring-wheat States—Minnesota and the Dakotas—and the Pacific Northwest, notwithstanding the persistent efforts of State agricultural departments, colleges, and other organizations to combat it. Smut is mainly transmitted by sowing infected seed, but it is also scattered by the wind.

Besides giving wheat an extremely disagreeable odor, smut discolors the flour made from such wheat, giving it a grayish cast unless the grain is thoroughly cleaned. As grain buyers in the markets almost invariably smell samples of wheat they are examining (unless the wheat is very bright), it is readily detected. A slight odor on otherwise choice wheat may not cause the price to be discounted. But unless the demand for wheat is particularly good, the presence of smut means a lower price than if the grain were clean. If the wheat is very foul with smut, the price suffers proportionately, because of the amount of work necessary to clean the grain.

Very smutty wheat can not be cleaned sufficiently for milling merely by running it through cleaning machines—"scouring" it. This suffices only when a moderate amount of smut is present, but when very foul, the wheat must be washed in addition. The expense of such equipment and the cost of cleaning and washing smutty wheat adds several cents a bushel to the cost of the wheat to the mills. Or, put another way, the mills must buy such wheat at a considerable discount under the price they could pay for the same wheat free from smut.

In parts of the principal spring-wheat States, Minnesota and the Dakotas, smut is common enough to be a factor in the market. Yet it is not so bad as to require washing of more than a small percentage of the wheat, but all of the mills that use smut-infected wheat must be equipped with proper cleaning machinery.

Serious in Pacific Northwest

An authority says that beyond question smut is the most serious disease of wheat in the Pacific Northwest. The trouble is very generally present in the wheat fields of Washington. It is the most destructive in the Palouse region of eastern Washington and adjacent territory, and gradually decreases in severity in passing from the more humid eastern part of the State to the semiarid country.

The financial loss caused by wheat smut in Washington every season is estimated in the millions of dollars. The loss is fourfold. First, the increased cost of production necessitated by seed treatment, soil sanitation, and cultural practices designed to reduce infection; second, the reduction in yield per acre; third, the lowering of grade or quality, and fourth, the loss from separator fires caused by smut explosions.

All the large mills in the Pacific Northwest are equipped with apparatus for washing smutty wheat.

Smutty Wheat Defined

Smutty wheat, under the official grain standards, or Federal grades, is defined as wheat that has an unmistakable odor of smut, or which contains spores, balls or portions of balls of smut in excess of a quantity equal to two balls of average size in 50 grams of wheat.

In the inspection of smutty wheat, either of two methods (described in section 24 of Service and Regulatory Announcements No. 33 of the United States Department of Agriculture and quoted in full at the close of this article) may be followed. The methods are similar in one respect, namely, that the wheat is graded as such wheat would be if it were not smutty, except that smut balls shall not be considered as foreign material other than dockage. Also, in both methods dockage-free wheat is used.

One method provides for the determination of the amount of smut by percentages and is designated as "smut dockage." This is the practice in the Pacific Northwest, where smut is a greater factor than in any other part of the country. This method is little used elsewhere.

At the terminal markets east of the Rocky Mountains where smut is a factor—Minneapolis and Duluth, Chicago, New York, Philadelphia and Baltimore—the inspector merely grades the wheat as if it were not smutty and then adds to the grade the word "smutty"; as, for example, "No. 1 Northern Spring, Smutty." The allowance for smut is made in the price by the buyer.

Smut a Fungous Disease

The following comments on smut are from recognized authorities:

Smut is a fungous disease. It develops inside the growing plant and at heading

time produces a dark, powdery spore mass instead of the grain. It not only reduces the yield, but also lowers the quality of the sound grain and renders it unsafe for planting until treated.

Two different groups of smut occur on small grains. In the first group the spores cling to the outside of the seed and infect the seedling as soon as it emerges from the seed. Stinking smut (bunt) of wheat is typical of this class.

The heads of wheat plants affected by stinking smut are of a distinctly darker green color than normal ones. The diseased kernels are usnally large and distend the glumes, giving the heads the appearance of being better filled than sonnd heads. The spores are scattered widely through the whole crop at thrashing time. They cling to the outside of the seed and are planted with it. They germinate and infect the young seedling as soon as it sprouts. The fungous mycelium grows upward slowly within the young plant until the time of heading, when it develops rapidly within the ovary of the blossom, and fills the entire interior of the wheat grain with its smnt spores.

"Minute, Colorless Plants"

The kinds of smut are as numerous as the kinds of grain, and they differ from each other as essentially as do the different cereals, such as wheat, oats, barley, and rye. These smuts are fungous parasites. They are minute, colorless plants of threadlike structnre, which, with few exceptions, are able to enter the seedling grain plants just as they start, grow up within the "host" plants thns attacked, and there remain unseen until the heads of grain appear. At this stage the heads of diseased plants are found to be partially or wholly destroyed and replaced by masses of dark-colored fungous spores, the so-called smut. These spores are too small to be seen individually with the naked eye. In each visible smut mass there are thousands, or even millions, of them. They serve to propagate the smut in the next crop by getting on or in the seed, where they are at hand to begin growing again along with the grain when it is planted.

The odor and color of the smnt seriously affects the grain for milling purposes, so that it must be scoured clean by special processes. The dockage in price on this account is serions at times, particularly where the mills are not adequately eqnipped with scourers and washers.

Smut Spread by Wind

There is no longer any doubt that smut is extensively disseminated by the wind.

For example, at Pullman, Wash., during the first week in September, 1915, 17,000 smut spores fell on each square inch of surface at a point a quarter-mile distant from the nearest wheat field. Smut spores can be found in abundance on the surface of vegetation at varying distances from any wheat fields. Twenty-five apple leaves taken from an orchard at least a quarter of a mile distant from the nearest wheat field, when collected and examined on September 9, were found to have over three million smut spores on their surfaces.

In one instance a test was made by sowing clean wheat on new land. The tract used in this test had never had wheat grown upon it, nor had wheat been grown near it in recent years, and every possible care was taken to keep it free from smut. The seed nsed was hand thrashed from selected smut-free heads, yet it was treated as an added safeguard against infection. Light rains began September 6 and the soil was well moistened by September 15. No other explanation except wind-blown spores can be given for the high percentage of smut shown by the various plantings.

Grading Smutty Wheat

The following is from Service and Regulatory Announcements No. 33 of the Bureau of Markets, United States Department of Agriculture:

"SEC. 24. *Grades for smutty wheat.*—Smntty wheat shall be graded and designated according to the method described either in paragraph (*a*) or paragraph (*b*) of this section.

"(*a*) Before the determination of smut dockage as provided in this paragraph, the wheat shall be graded and designated according to the grade requirements of the standard applicable to such wheat if it were not smutty, except that smut balls shall not be considered as foreign material other than dockage. The loss in weight cansed by the removal of smut from the wheat shall be ascertained by scouring, washing, or otherwise, and shall be calculated in terms of percentage based on the total weight of the grain free from dockage. The percentage so calculated shall be stated in terms of whole per centum and half per centum. A fraction of a per centum when equal to, or greater than, a half shall be treated as a half, and when less than a half shall be disregarded. The percentage of the 'smut dockage,' so calculated and stated, shall be added to the grade designation preceding the statement of dockage, if any.

"(*b*) Smutty wheat shall be graded and designated according to the grade requirements of the standard applicable to such wheat if it were not smutty, except that (1) smut balls shall not be considered as foreign material other than dockage, and (2) when the amount of smut present is so great that any one or more of the grade requirements of the grades from No. 1 to No. 5, inclusive, can not be applied accurately, the wheat shall be classified as sample grade. For all grades there shall be added to and made a part of the grade designation, preceding the statement of dockage, if any, the word 'smutty.'"

Pyrethrum Should Be Sealed To Keep Its Killing Power

Insect powders containing pyrethrum will retain their effectiveness for months if kept in sealed containers, but if left exposed to heat and moisture they will lose their power to kill insects within a few weeks. This is brought out in tests recently completed by entomologists of the United States Department of Agriculture, a report of which has been published in the department's bulletin 771. Pyrethrum both whole and ground was kept for various periods under a variety of conditions, and then tested for effectiveness in two different ways: By dusting the powder on small potted nasturtium plants heavily infested with aphids, and by dropping croton bugs into a glass jar containing a small amount of the pyrethrum powder to be tested, and shaking the jar so as to cover them thoroughly with the powder.

It was found that the ground flower heads kept in tightly closed glass containers for 5½ years lost practically all their effectiveness, while the whole flower heads kept in similar containers for the same period were almost unhurt. Both whole and ground flower heads kept in sealed fruit jars for 150 weeks were not injured. When exposed for 34 weeks in an open dish in a room, ground pyrethrum was not injured, but its effectiveness was materially reduced by an exposure of 136 weeks and it was practically worthless at the end of 150 weeks. When exposed to the weather for 21 weeks both the whole and ground heads were greatly reduced in efficiency.

Powdered flower heads heated to 120° C. for 18 hours were practically uninjured, but a temperature of 130° or 140° C. for the same period destroyed their effectiveness. Ground flower heads were slightly injured by soaking for 24 hours in cold water, and materially injured by soaking for the same length of time in hot water.

Corn oil, which, so far as is known, is made only in this country and Canada, has within the last decade come into prominence as both a food and technical oil.

How Credit Unions Help the Farmer; Eight States Provide for Them by Law

Neither a borrower nor a lender be,
For loan oft loses both itself and friend.

William Shakespeare's couplet may have been apropos during the age of ruffs, doublets, and lace, but it is out of fashion now. Judicious, legitimate lending and borrowing are now primary principles of successful business. The game of keeping the dollars constantly in circulation has developed to such an extent that in many sections personal-credit organizations have been promoted which cooperate with local banks in rural and urban financial affairs.

"There should be provided a system of personal-credit unions, especially for the benefit of individuals whose financial circumstances and scale of operations make it difficult for them to secure accommodations through the ordinary channels," said David F. Houston, Secretary of Agriculture, not long ago.

"Organized commercial banks make short-term loans of a great aggregate volume to the farmers of the Nation possessing the requisite individual credit, but there are many farmers who, because of their circumstances, are prevented from securing the accommodations they need. An investigation by the United States Department of Agriculture to determine the extent to which farmers in the Southern States were dependent upon credit obtained from merchants revealed the fact that 60 per cent of them were operating under the 'advancing system.' The men I have especially in mind are those whose operations are on a small scale, and who are not, in most cases, intimately in touch with banking machinery, who know too little about financial operations, and whose cases usually do not receive the affirmative attention and sympathy of the banker. Such farmers would be much benefited by membership in cooperative credit associations or unions.

"What further can be done by the Federal Government directly to stimulate personal-credit unions it is difficult to outline," continued Mr. Houston. "This matter has received consideration at the hands of many experts, and was thoroughly canvassed by a joint committee of Congress. The conclusion, up to the present, seems to be that the field is one primarily for the States to occupy through sound legislation. About 125 associations have been organized, but the larger percentage of them have been formed by wage earners in urban centers. The attempt to develop strictly rural credit bodies has met with somewhat more success in North Carolina than elsewhere. In this State the work of promoting and supervising such organizations was placed in charge of an official in the division of markets and rural organization of the State college of agriculture. The law of this State was enacted in 1915, and at present 16 credit unions, all of them rural, are in operation. It is noteworthy that the North Carolina law makes special provision for educational and demonstrational activities."

Eight States Enact Credit Laws

Eight States—Massachusetts, New York, Texas, South Carolina, North Carolina, Wisconsin, Utah, and Oregon—have passed credit laws, while North Carolina now boasts 17 rural credit unions, 5 of which are especially prosperous and successful. Furthermore, in many urban sections of the New England States, personal credit unions have been established, and have fostered saving among the laboring classes and their children. In Massachusetts, where the first of these clubs, the Myrick Union, was formed in 1908, there are 80 such clubs at present.

Under the German Raiffeisen system the credit union was a strictly cooperative association conceived without capital stock, although ultimately the Imperial Government required all such clubs to have capital stock. Under the Raiffeisen system these unlimited liability institutions make small loans at a low rate of interest for a designated purpose to worthy members of the society.

The capital stock company is the typical form of organization in the United States. For the association with share capital there is a limitation as to liability of the members, and this feature has been important in attracting members and capital. On the other hand, for those communities where share capital is not readily available, the nonstock association affords a means of obtaining funds on the basis of an unlimited liability.

Is a Universal Depository

The credit union will accept deposits from anyone, but it will lend money under restrictions only to its members. Funds are obtained by the credit association through share capital, by general deposits or by borrowing in the name of the association. Usually in the nonstock association a small membership fee is charged so as not to discourage membership. This furnishes funds for a small working capital.

In the share capital clubs each share sells for $5 to $10. Ordinarily there is no limitation on the purchase of shares unless this is controlled by State law or by-law of the association. No salaries are paid except a nominal one to the secretary-treasurer, who usually is a farmer or a business man having a connection with a local bank.

The success of the agricultural credit unions in North Carolina has been due largely to the fact that the State agricultural department has aided the movement by valuable educational work among the farmers for the encouragement of credit organizations. This assistance from the State is so invaluable that other States contemplating the promotion of rural credit clubs might well consider the practicability of a similar arrangement, in the opinion of the Federal Department of Agriculture. The superintendent of credit unions in North Carolina assists groups of farmers interested in the credit union idea, and advises with them not only in the formation of clubs but also in the efficient management of the organizations after they are formed.

Has 17 Credit Clubs

The seventeen credit unions of North Carolina, up to December, 1918, had a total membership of 783, with 299 depositors who have made payments of $7,977.27 on shares of stock. The deposits aggregate $14,175.25, and the loans to 144 borrowers total $17,778.76. Only $3,200 had been borrowed from local banks, while the cash in banks amounted to $7,529.82. The total resources of the 17 cooperative credit clubs was $27,465.01 at the time mentioned.

The Vadese Union, organized February 10, 1917, has 80 members and 87 depositors, who have made payment of $1,746 on shares. The total deposits were $6,655.08 in December, 1918, while 31 members had borrowed $6,916.43. The club had $1,429.78 in the bank, and total resources of $8,986.23. The Lowe's Grove Union, the oldest in the State, organized January 20, 1916, had 55 members and 79 depositors in December, 1918. The paid-up shares amounted to $687.50; the deposits were $1,159.78; the loans to 30 members aggregated $2,326.45. From the local bank $600 had been borrowed, while the cash in banks amounted to only $1.41 as compared with the total resources of $2,632.29.

From one point of view the credit union really operates as a connecting link between the farmer and the banker, and improves the farmers' chances of doing business with the bank. The credit union affords an excellent channel for farmers to get in intimate touch with their home

bankers. The bankers, as a rule, appreciate that it is good business to aid the credit unions as ultimately the local bank benefits from the plan, in the same way that saving accounts, usually dead losses at first, finally figure prominently in the net profits. The fundamental value of the credit union is that it encourages saving. It also enables farmers to negotiate better term loans, and it encourages the practice of modern business methods in farming.

Banks Furnish Credit Funds

Usually each credit union makes definite arrangements with some bank by which the latter acts as a depository and furnishes loans on specific terms. Thus one of the unions in North Carolina receives three per cent interest from its bank on deposits subject to check, and 4 per cent on savings accounts left on deposit three months or longer. It pays 5 per cent interest on its loans from the bank. The credit union in turn pays its own members 5 per cent on their savings accounts and furnishes them loans at 6 per cent. Such a credit union not only accustoms its members to the use of check and savings accounts, but also enables the members to obtain loans for approved productive purposes on better terms than they could obtain elsewhere.

In addition to handling deposits and floating loans, some of the North Carolina unions also aid their members in the purchase of cottonseed meal and corn or soy-bean seed, the credit club buying in car-lot quantities and thereby saving money for their members, who otherwise would have to buy in small quantities at retail prices.

Loans for Productive Purposes Only

Any member who is industrious and pays his debts should be able to borrow from his credit union, provided his loan is to be used for productive purposes, which will help pay the debt. The character of the borrower is prime security. Two indorsees are required to sign the note. This is regarded as extra security to safeguard the credit union.

During the first year of activities of a credit union the shorter term loans for four months or a year should be given preference to those for longer duration. The longer-time credit can not be realized on, while the shorter-term loan can be renewed, if possible and desirable. The length of time for which a loan should be granted will depend upon its purpose and the system of farming practiced. It takes a farmer longer to gain full returns from a mule or plow than from seed or fertilizer. A dairy farmer might be able to pay off his indebtedness in from two to three months, while a cotton producer might require six to twelve months.

Commercial Wheat Stocks on March 1 More Than Triple Amount of Last Year

Commercial stocks of wheat reported in a survey made by the Department of Agriculture for March 1, 1919, amounted to 197,277,688 bushels. These holdings, reported by 11,499 firms—elevators, warehouses, grain mills, and wholesale dealers—were more than three times as large as the stocks held by the same firms a year earlier, the actual percentage being 308.9 per cent of the 1918 stocks. The figures refer to stocks actually reported, and do not represent the total commercial stocks of the country, nor do they include stocks on farms.

Visible Supply Figures Compared

The commercial visible supply figures, as published by the Chicago Board of Trade for March 1, 1919, show 118,219,000 bushels of wheat, as against 9,739,000 bushels a year earlier. Corresponding Bradstreet figures show 127,207,000 bushels, as against 15,484,000 bushels for 1918. As compared with the same date of last year, these figures, as well as those obtained by the more extensive surveys, show a very great relative increase in commercial stocks of wheat on March 1, 1919.

Other Cereals, Flour, and Corn Meal

The commercial stocks of other cereals reported for March 1, 1919, according to the department statement, were as follows: Corn, 24,403,393 bushels; oats, 71,255,951 bushels; barley, 32,418,594 bushels; rye, 24,547,500 bushels. These stocks represent the following percentages of the corresponding stocks on March 1, 1918: Corn, 62.9 per cent; oats, 101.8 per cent; barley, 154.8 per cent; rye, 454.1 per cent.

The commercial stocks of flour and corn meal, as reported for the survey were: Wheat flour, white, 7,077,976 barrels; whole wheat and graham flour, 94,115 barrels; barley flour, 128,420 barrels; rye flour, 263,618 barrels; corn flour, 19,662,024 pounds; corn meal, 59,935,891 pounds; buckwheat flour, 23,713,521 pounds; mixed flour, 58,427,148 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 160.6 per cent; whole wheat and graham flour, 100.4 per cent; barley flour, 93.7 per cent; rye flour, 117.2 per cent; corn flour, 187.5 per cent; corn meal, 105.7 per cent; buckwheat flour, 351.3 per cent; mixed flour, 300.6 per cent.

Stocks of Selected Commodities

Elevators, warehouses, and wholesale dealers reported stocks of beans amounting to 8,305,897 bushels, while wholesale grocers and warehouses reported the following commodities in the quantities indicated: Rice, 126,460,982 pounds; rolled oats, 72,916,730 pounds; canned salmon, 137,415,599 pounds; canned tomatoes, 274,516,169 pounds; canned corn, 132,288,018 pounds; sugar, 200,320,552 pounds. These stocks represent the following percentages of the corresponding stocks on hand March 1, 1918: Beans, 146.9 per cent; rice, 129.4 per cent; rolled oats, 180.8 per cent; canned salmon, 103.8 per cent; canned tomatoes, 183 per cent; canned corn, 167.8 per cent; sugar, 187.9 per cent.

Stocks of condensed and evaporated milk were reported by condensaries, cold storages, warehouses, and wholesale grocers, as follows: Condensed milk, 30,347,106 pounds; evaporated milk, 85,317,377 pounds. The holdings of condensed milk reported for March 1, 1919, represented 121.9 per cent of the stocks held by the same firms a year earlier, while the holdings of evaporated milk represented 85.4 per cent of the March, 1918, stocks.

Boys and girls should be encouraged to start in the poultry business. It requires little money to invest, and the current expenditure may be reduced in part by utilizing farm and home wastes. If the project begins with a laying flock the return begins early, especially by supplementing the food supply of the home.

While silage is an excellent feed for dairy stock, it should be combined with some leguminous feed, such as clover, cowpeas, or alfalfa, owing to its insufficient productive quality. The leguminous material will tend to correct the deficiencies of the silage in dry matter, protein, and mineral constituents.

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Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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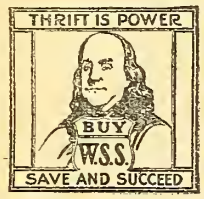


AGRICULTURAL CENSUS COMES JANUARY 1; TO AVOID RUSH

Uncle Sam has decided to take the fourteenth census on farms January 1, 1920, instead of collecting this data as of April 15, as was done in 1910. The date was changed because farmers ordinarily are very busy with the rush of spring work about the middle of April, also because the April 15 date comes during the midst of the breeding season, when the number of young stock is not comparable between northern and southern regions, and, finally, because the returns on the crops obtained during the winter are more accurate than those obtained later and comparable with the December estimates of the Bureau of Crop Estimates.

The United States Department of Agriculture is assisting the Census Bureau in making this coming agricultural census as accurate and valuable as possible. To a limited degree the character of the information to be secured will differ from previous enumerations, because of slight changes in the questions which the enumerators will ask farmers. These changes in the schedule of questions have been made by a committee composed of L. M. Estabrook, C. W. Thompson, O. E. Baker, L. C. Corbett, and F. W. Farley, representing the United States Department of Agriculture; H. C. Taylor, of the University of Wisconsin, recently appointed Chief of the Office of Farm Management of the Department of Agriculture; and G. F. Warren, of Cornell, in conference with officials of the Census Bureau.

The questions include information on the acreage and production of the crops, amount sold or to be sold, live-stock classification both by sex and age, acreage of woodland, and the amount of land on farms drained and needing drainage. Special consideration will also be given to matters of land tenure, farm mortgages, land utilization, the amount of land and acreage of crops irrigated, numbers of young live stock sold, purchased, slaughtered, and died on the farms, and quantity of dairy products and wool produced. Owing to the fundamental importance of these statistics, which provide basic information relative to farms and farming in the United States, it is hoped that farmers throughout the country will assist the census enumerators in every way possible in securing accurate, reliable, and complete information.

DEPARTMENT NOT ANXIOUS TO HANDLE GUARANTY FOR WHEAT

Several statements have recently appeared in daily and grain trade papers indicating that the Department of Agriculture is anxious to take charge of the work of carrying out the guaranteed price on the 1919 wheat crop. These statements misrepresent the attitude of the Department of Agriculture.

The Department of Agriculture, after this country entered the war, took the position that emergency food activities of a commercial nature should be directed by an emergency agency, and therefore participated in framing the food-control act giving the President power to create such an agency. The Food Administration and its Grain Corporation were set up under the act and they have handled the wheat guaranties from the beginning. The Secretary of Agriculture has assumed until recently that these agencies would, without question, continue to handle the wheat guaranties until the emergency passed and the law ceased to be in operation. He still believes that it would be desirable for the Grain Corporation to continue to function and close out the matter.

The corporation has gained much valuable experience during the war and should be able to deal with the problem as effectively as any other establishment. The recent wheat-guaranty act seems to contemplate that this agency would continue to act. Among other things, it authorizes the President to use any existing agency or agencies and to utilize any department of the Government, including, of course, the Food Administration Grain Corporation. It would be difficult for any other existing agency now to set up the requisite machinery, especially in view of the short time intervening before the 1919 crop movement begins; and even if it were to undertake to do so, some embarrassment would undoubtedly result, because two agencies, over a part of the period, would be dealing with wheat.

Would Assume Work if Given

The task is one of great magnitude and the time is short. The Secretary of Agriculture recently cabled to the President, pointing out the necessity for immediate action and urging that the present machinery—that is, the Food Administration Grain Corporation—be maintained and utilized. As a matter of course, if the President should designate the Department of Agriculture as the agency to handle the 1919 guaranty, it would assume the task and discharge it to the best of its ability.

BIG DROP IN WOOL CONSUMPTION

Less wool was used by manufacturers in February of this year than in any month since monthly consumption reports have been issued by the Bureau of Markets, Department of Agriculture. February consumption was 27,500,000 pounds, grease equivalent, compared to 63,700,000 in February a year ago, a decrease of over 50 per cent.

Consumption of wool during February, 1919, in classes by pounds, was: Grease, 17,772,920; scoured, 3,467,457; and pulled, 1,946,441. Massachusetts used the most wool, followed in order by Rhode Island, Pennsylvania, New York, New Jersey, New Hampshire, Connecticut, Ohio, and Maine.

Strikes and the inability of small manufacturers to secure wool because Government auctions were on a cash basis are two of the reasons given for the decline in consumption during February.

GRAIN-GRADING EXHIBIT SHOWN

The Department of Agriculture sent a grain-grading exhibit to the annual convention of the Western Grain Dealers' Association at Sioux City, Iowa, April 1 and 2. The exhibit includes apparatus used in grading grain under Federal standards and samples of different grades of wheat and shelled corn. It was in charge of Grain Supervisors Walter Fowler, of Omaha, and Ralph Brown, of Washington, D. C., who demonstrated actual methods used in grading grain and explained the application of Federal grain standards to interstate shipments of wheat and shelled corn.

Exaggerated Claims For Mung Beans; Can not Compare With Common Varieties

The attention of the United States Department of Agriculture has been called to some exaggerated claims of the good qualities of the Mung bean, and exorbitant prices asked for the seed.

The Mung bean was known in the United States previous to 1835. About 1853 it was grown under the names of Chickashaw pea and Oregon pea. One variety was rather generally known in the Southern States for many years as the Newman bean.

The Mung bean is one of the commonly cultivated legumes of southern Asia, the adjacent Malayan Islands, and the eastern portions of Africa. The seeds are used almost exclusively for human food and the fodder is fed to cattle. It is extensively used, especially in China, for supplying the people with bean sprouts, bean vermicelli and bean gelatin. Considerable quantities of Mung-bean seed imported into the United States are utilized almost entirely by Chinese restaurants for sprouting.

During the last 10 years the Department of Agriculture has introduced and tested about 100 lots of Mung beans from various sources. It is doubtful whether the best will prove a permanent addition to American agriculture.

This bean is not as vigorous a plant as the cowpea or velvet bean and does not compare very favorably with these crops for forage, green manure, or pasture. As a seed producer it is far inferior to the soy bean. Its initial growth is slow, the forage tends to turn black in curing and the pods shatter badly. The seeds are much subject to attack by weevil. Experiments conducted in the wilt and nematode lands in the Southern States showed all varieties more or less subject to both of these diseases. Under Texas conditions the seed yield ranged from 4 to 15 bushels.

As a food crop in America, the Mung bean will not compete with common field beans and peas, but it may find use to some extent for sprouting. Bean sprouts are a valuable food and furnish a green vegetable at a time when such food is scarce.

Although under present economic conditions this bean is not to be recommended as a general farm crop, it has apparently a place in certain systems of agriculture. It is an excellent poultry feed, used as pasture when mature. Moreover, the beans can be used as are sprouted oats, as a green winter feed. This appears to be one of the most important uses of the crop.

The department has already arranged for the distribution of such seed as was available.

Why a $5,000 Bull Was Sold for $50; Testing Value Shown

When a certain farmer a few years ago sold his registered Holstein bull to his local butcher no records had been made by any of the bull's daughters. Within a year 11 of the daughters freshened at the ages of 2 and 3. Records were made of milk and butter-fat production, and to the astonishment of everybody the average milk production was 14,502 pounds and the average butter-fat production was 573 pounds.

But before these records were available the bull was dead and his hide had become leather. Because there were no records, a $5,000 bull had been sold for $50. The cow-testing association tests the dams and daughters, and the bull association makes it practicable to keep a bull until his daughters have been tested. These two associations would have saved that bull.

Registration alone can not guarantee production. Registered dairy bulls should be backed by good production records. Without record backing they may be very well bred, but there is nothing to prove it.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended March 29, 1919:

Geographical Phases of Farm Prices: Oats. Department Bulletin 755.

The Larger Corn Stalk-Borer. Farmers' Bulletin 1025.

The Farm Tractor in the Dakotas. Farmers' Bulletin 1035.

The Eelworm Disease of Wheat and Its Control. Farmers' Bulletin 1041.

The Place of Rye in American Agriculture. Yearbook Separate 769.

Private Forestry. Address by Henry S. Graves before the New England Forestry Conference, Boston. Office of the Secretary Circular 129.

Address of D. F. Houston, Secretary of Agriculture, before the joint conference of the agricultural commission of the American Bankers' Association and the agricultural committees of the State Bankers' Associations. Office of the Secretary Circular 131.

Insect Enemies and Diseases of the Tomato. Office of Extension Work South, S. R. S. 95.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

LESS LUMBER CUT IN 1918, PARTIAL RETURNS INDICATE

A total lumber production of 32,760,000,000 feet is the estimated cut for the year 1918 on the basis of partial returns received by the Forest Service of the United States Department of Agriculture from 731 sawmills, each of which cut 5,000,000 or more feet in the years 1917 or 1918.

In 1917 the total production amounted to 36,000,000,000 feet. The decrease in 1918 is not confined to any one region but is general. It is largest in the Southern and Eastern States and least in the Western States.

The attached summary shows the production by States, the number of mills reporting, the reported cut, and the decrease or increase over the 1917 figures of production for the same mills.

State.	Number of mills.	Reported cut (feet).	Per cent increase.	Per cent decrease.
Alabama	20	252,248,000	.....	25
Arkansas	39	655,121,000	.....	16
Florida	18	291,924,000	.....	3
Georgia	13	134,688,000	.....	23
Louisiana	91	1,674,662,000	.....	20
Mississippi	55	929,444,000	.....	12
Texas	31	560,987,000	.....	14
North Carolina	26	287,783,000	.....	11
South Carolina	15	197,819,000	.....	24
Virginia	8	77,794,000	.....	15
Michigan	37	412,249,000	.....	9
Minnesota	16	418,751,000	7	.....
Wisconsin	45	682,439,000	.....	10
California and Nevada	38	951,367,000	.....	11
Oregon	68	2,004,882,000	.....	2
Washington	139	3,226,169,000	.....	4
Idaho	18	548,469,000	1	.....
Montana	8	261,620,000	7	.....
Arizona	4	76,652,000	9	.....
New Mexico	5	48,854,000	.....	16
Tennessee	4	47,751,000	2	.....
West Virginia	16	160,117,000	.....	13
Maine	9	82,436,000	.....	27
Missouri	8	90,618,000	2	.....

When our great-grandmothers were girls, tomatoes were called "love apples," and one or two plants were grown in the garden or flower beds on account of their bright red fruits. No one thought of eating them, for they were considered poisonous. When after a time it was found that they were not poisonous, people began to eat them and they soon became one of the standard garden vegetables.

Milk Bottle Losses Make Huge Waste; Save Containers, Cut Distribution Cost

Who is to blame for the staggering waste of milk bottles in the United States—a waste amounting to millions of these containers annually—which adds to the cost of distribution, is a factor in the price of milk, and, in the end, is paid for by consumers? To answer this question and determine ways of remedying the situation dairy specialists of the United States Department of Agriculture made an investigation. Responsibility for the waste, they learned, is widely distributed.

The average milk bottle is short lived. It makes only about 17 trips before it is broken or lost, the specialists found. For every consumer who has a quart of milk delivered at the door each day the dealer in the course of a year has to supply 20 new bottles. The investigation, conducted in 86 cities, shows that the average milk dealer buys 17,649 new bottles a month, and the large dealers buy more than 90,000 a month, which are largely, though not entirely, replacement stock.

Junk Dealers Profit

In 16 cities included in the investigation more than 8,000,000 sound milk bottles are collected annually from the city dumps. In some cities the business carried on by junk dealers is one of the most serious sources of milk-bottle loss. Not only do they sell the bottles to dealers in the city, but often ship them to other towns. Most States have no laws restricting this traffic.

Of 86 cities furnishing information to the department only 33 had milk-bottle exchanges or places where milk bottles from all sources are sorted out and returned to the owner, provided he is a member of the exchange.

Few States Regulate

Only 19 States have regulations governing the use of milk bottles, and of the 86 cities studied 72 reported the use by dealers of other dealers' bottles.

Various plans, inducements, and charges for bottles have been tried, according to reports from 61 dealers and 47 health officers. The Department of Agriculture has summarized the most practical methods, as given above, and is now distributing the information to milk plants and other persons interested. Federal experts are still working on the problem of milk-bottle losses, and point out that the abnormal waste is ultimately borne by the public, which should take an active interest in the question, encouraging educational efforts and suitable regulations.

TO REDUCE MILK-BOTTLE LOSSES.

Consumers can help by careful handling and prompt return of milk bottles to dealers or their authorized agents.

Drivers can collect all bottles promptly and handle them with more care.

Milk dealers can develop more effective plans for marking bottles, collecting those which are lost, and returning them to the owner.

Legislators and public officials may assist by providing laws, ordinances, and regulations to curb wasteful and dishonest practices, including the suppression of the milk-bottle traffic by junk dealers.

Inspectors and the courts may give valuable service by strictly enforcing laws and regulations.

The press has an important service to perform in pointing out that milk bottles are private property, in the aggregate of great value, and a material factor in the cost of milk service.

CLAIMS FOR "NEW" FLAXES NOT BORNE OUT BY TESTS

Certain so-called new varieties of flax which have been advertised recently in glowing terms are not as well adapted and in other ways are inferior to well-established American varieties, according to specialists of the United States Department of Agriculture. One variety having yellowish-white seeds much larger than those of the flax commonly grown in this country, is said by the dealer, who charges an exorbitant price for it, to have exceptional advantages.

The Department of Agriculture has investigated the yielding power, disease resistance, and oil content of flax varieties grown in this country and other parts of the world. Among the varieties received from Asia and South America are some with large brown seeds, and others obtained from Manchuria, Russian and Chinese Turkestan, India, and Abyssinia have yellowish-white seeds and white flowers. Experiments have shown that none of these are well adapted to American conditions. Most of them are too late to be of real value in the northern flax belt. It has not been proved that any of them make as good yields as the best American varieties, nor has any one shown itself a better producer of oil.

One strain having large yellowish-white seeds and white flowers, which was imported from Japan in 1913 by a commercial agency and has been grown to some extent in North Dakota, Montana, and Oregon under the name Golden flax, has been shown in experiments conducted by the department to be less desirable than the brown-seeded kinds commonly grown. Recently a well-known horticulturist of the Far West advertised at a high price a variety having large white seeds. This variety has also been tested by the department and has been found practically identical with a variety which has previously been received from India. Results from experiments conducted in 1918 have been unfavorable to this variety, as well as other white-seeded kinds, in comparison with the ordinary American varieties, both in the northern Great Plains and in the Pacific Southwest. The department recommends that flax growers grow American varieties which have established their merit through large-scale commercial production.

ASSISTANT CHIEF APPOINTED IN FARM-MANAGEMENT WORK

Asher Hobson, at present field agent in marketing, employed jointly by the Bureau of Markets of the Department of Agriculture and the Washington State College of Agriculture, has been appointed Assistant Chief of the Office of Farm Management, effective April 1. Mr. Hobson will assist Dr. H. C. Taylor, the new Chief of the Office of Farm Management, in directing the work of the office.

Mr. Hobson was raised on a farm, received the degree of A. B. from the University of Kansas, and of M. A. from the University of Wisconsin. He has served as research assistant in marketing at the Wisconsin Agricultural Experiment Station, as assistant in dairy marketing investigations in the Bureau of Markets, as instructor in agricultural economics at the Washington State College, and since February, 1917, has been employed jointly by the Bureau of Markets and the State College of Washington in marketing investigations in that State. For three years he was a graduate student in the department of agricultural economics at the University of Wisconsin and served as assistant to Dr. H. C. Taylor.

The principal advantage of the swing-around stacker over the overshot type is its ability to deliver the load of hay to different parts of the stack, thus reducing the amount of work required on the stack.

Removes Bars to Successful Culture of Dates in Parts of the United States

Date growing in parts of the United States now gives promise of commercial success as a result of work conducted by the United States Department of Agriculture to overcome obstacles that for years have stood in the way of their successful culture.

Two factors were largely responsible for making date growing doubtful—the difficulty experienced in ripening the fruits and failure of many attempts to root offshoots of desirable varieties. For the study of date culture—varieties, propagation, and curing—two experimental date orchards were established in California where a large number of the best date varieties of the Old World have been tested. In 1910 a slow-maturation process of ripening the fruit of the Deglet Noor variety was discovered, which gave assurance of successful production in areas of high temperature adapted to the culture of dates of good quality. The problem of rooting offshoots has now been worked out and no longer offers unusual difficulties.

Experiments' Results Given

The results of the experimental work are described in Farmers' Bulletin 1016, "Propagation and Culture of the Date Palm," recently issued by the United States Department of Agriculture.

Date palms are propagated either by seed or by offshoots, says the bulletin, and no other method is known. Seed may be planted from the best varieties, but there is no assurance to the grower that he will get a large percentage of commercial dates. The offshoot of the date palm is a bud at the axil of the leaf; hence it is a direct product of the growing stem, and in variety the same as the parent plant.

The only thoroughly satisfactory method yet devised for rooting young date offshoots, says the bulletin, consists in the use of a heavily manured nursery bed with a cloth-covered frame or shed so constructed as to give maximum heat and humidity. Water must be applied in ample and regular quantities.

Frequent irrigation and the maintenance of a high degree of soil fertility by the use of manure, mulches, and cover crops are essential to healthy growth and to the production of fruit in paying quantities. First-class dates suitable for market can be produced only on soils in a high condition of fertility and tilth. This condition is most readily maintained on a well-drained sandy loam. Heavy soils need special attention to insure the proper penetration of the roots and distribution of water. Localities where the settling of cold air causes the formation of dew during the ripening period may prove fatal to the more susceptible varieties of fruit.

The pruning of bearing palms should consist merely in the removal of old leaves up to the fruit stem of the former crop. Young palms should not be allowed to produce heavy crops of fruit, as this would be done at the expense of offshoot growth. At the present stage of the industry the production of offshoots of proved varieties is of paramount importance.

MORE HIGHWAY CONSTRUCTION IN 1919 THAN ANY PAST YEAR

(Continued from page 1)

"The Congress at its last session, accepting the recommendations of the Department of Agriculture, not only made available from the Federal Treasury large additional sums for road construction in cooperation with the States but also made some important amendments to the Federal aid road act. These amendments will have the effect of greatly lessening the difficulties of selecting and constructing needed roads. The amount of Federal funds available for road building on March 1 was over $72,900,000, which under the law must be matched by at least an equal amount from the States, making a total of $145,800,000, including approximately $9,800,000 from Federal and State sources for roads in the national forests. On July 1, $95,000,000 more of Federal funds will become available for general road purposes and $4,000,000 for national-forest roads, which, with equal contributions from the States, will provide an additional $198,000,000 for Federal aid road work, making an aggregate sum of $343,800,000 for the calendar year. In other words, the 1919 program for Federal aid road building is greater than any previous annual road-building accomplishments in this country. It is so great, in fact, that the States will undoubtedly defer taking up part of the Federal funds until 1920, because experienced contracting and engineering organizations must be developed from the stagnant conditions of the war period before any exceptional amount of road building gets underway.

State Road Plans Extensive

"The States and their civil subdivisions also will carry on a large amount of road work without Federal aid. The extent of this is uncertain and will depend upon local labor, industrial, and agricultural conditions. The present indications are that approximately $280,000,000 will be spent in this way.

"The Federal aid road act, as amended, places only three limitations on the type of road to be constructed, as follows:

"1. That the roads shall be 'substantial in character.' This means that the road must be constructed, so that it will carry the prospective traffic with such maintenance expenses that the total annual charges will represent a reasonable expenditure for the public service rendered by the highway. It is to the interest of the States that the roads on which Federal funds are used be substantially constructed, because the law requires the States or other civil subdivisions, as a prerequisite to receiving further funds, to maintain properly all roads built with Federal aid. There is nothing in the law which restricts types of construction between narrower limits than those established by sound finance and good engineering practice.

"2. That the amount contributed from the Federal Treasury in connection with any road shall not exceed $20,000 a mile. The main thing is to build a road that will stand the traffic in the particular section of the country where it is constructed. The conditions in certain sections may require a heavy, expensive type of road, while in other sections a less expensive type may meet all the requirements. It was noticeable in the recent conference with highway officials that sentiment is growing throughout the country, even in the newer sections, in favor of more substantial roads. The people are beginning to realize that the expense of maintaining the lighter types where the traffic is heavy is unbearable. It might be well, in this connection, to point out that one of the first steps taken after the passage of the Federal aid road act was to suggest to the State highway departments that, in order to prevent haphazard action they arrange to outline a tentative system of roads which might be developed as the circumstances made it possible, subject, of course, to such changes as conditions demanded. The highway departments have been working on this matter and, in general, the projects have been developed accordingly. In planning and revising their systems due consideration, it is assumed, has been given by the highway authorities to connecting interstate roads.

New Definition Aids Work

"3. That the road must be a 'rural post road' as defined in the act as amended—that is, 'any public road a major portion of which is now used, or can be used, or forms a connecting link not to exceed ten miles in length of any road or roads now or hereafter used for the transportation of the United States mails.' Under the original wording of the law Federal funds could be expended only upon roads upon which the United States mails 'now are or may hereafter be transported.' This required a definite determination in each case of the actual

post route status of the road, which necessarily involved delays in many instances. The definition of the term 'post roads' has now been changed in such a way that very few important roads will be debarred from receiving Federal aid if all the requirements of the act are complied with. This feature of the original law was the most troublesome to the highway departments of the various States. Its modification will go far toward facilitating the prosecution of the work. It has already done much to convince the State authorities of the purpose of Congress and the intention of the Department of Agriculture to assist in the resumption and extension of road building in every practicable way.

"It will thus be seen that a broad and comprehensive road-building program has been inaugurated. This program is being vigorously pushed, and the indications are that a larger volume of highway construction will be accomplished this season than in any previous year in the history of the Nation. Furthermore, the work is being done in such a way as to utilize to the best advantage the road-building experience and facilities of the whole country.

State Department Supervision Best

"The purpose of the Federal aid road law is to encourage the construction of roads of a substantial nature by the States, and to provide adequate safeguards for securing systematic and economical action. Long experience has shown that the best results will be secured if the work is performed under the supervision of the State highway departments, the method of the control depending upon local conditions. The greater the administrative and technical ability of these departments, the greater will be their usefulness to the taxpayers of the State. Under the Federal law, the State highway departments have been strengthened and developed in a way that could not be equaled under any other type of national road legislation that has been suggested. The progress that has been made in this direction is very gratifying and helpful; and the existence of an effective control highway agency in nearly every State of the Union, actively cooperating with and supported by the Department of Agriculture, makes it possible to speed up road building more rapidly than any other branch of public works. By devoting all its energy to helping each State inaugurate the work as quickly and as extensively as possible, the Department of Agriculture multiplies its resources 48 times, and is a cooperator instead of a competitor in placing men and materials on the highways where they are most needed. It is the plan of the department to maintain the closest possible touch with the State highway departments, and it is contemplated that the American Association of State Highway Officials will, in the near future, be requested to designate some of its members to serve on an advisory committee to cooperate with the department in the administration and execution of the provisions of the Federal aid road act."

Must Guard Dairy Cows from Spring Weeds That Taint Milk

In nearly every section of the United States some weed appears in pastures in early spring and imparts foreign flavors and odors to milk. The milk's market value is reduced and often it is a total loss to the dairyman. Garlic or wild onion and bitter weeds, the chief evils of this sort, give the most trouble when cows are first turned upon pasture in the spring. Although not ordinarily relished by dairy cows, these weeds come at a time when pasture grasses are not plentiful and the cows are eager for any green plant.

Dairymen can prevent such trouble by keeping their herds from infested pastures, or may largely reduce it by proper management. Liberal feeding will tend to reduce the quantity of weeds eaten. Often the infestation is localized in the pasture and can be fenced off for other live stock, or the herd may be kept off slightly infested pastures until grasses are well started, after which there will be little trouble.

The unpleasant flavors and odors are strongest in the milk from cows that have just eaten such obnoxious weeds. If the cows are taken from infested pastures three or four hours before milking the trouble will be reduced. If a pasture free from such weeds is not available the cows should be brought to the barnyard and fed on silage or hay and allowed to remain out of doors until the regular milking time. Since most of the trouble with weeds lasts only for a short period, usually in the early spring, most dairymen can practice preventive methods to advantage.

Several methods have been devised whereby objectionable flavors and odors may be removed from milk by passing air through it. While these methods may be successful in a large dairy or milk plant, the cost and the short period of use make them impracticable for the average farmer.

ISLAND TO BE QUARANTINED

The island of San Clemento, Cal., on May 1, 1919, will be placed under Federal quarantine to prevent the spread to the mainland of sheep scabies, according to an order signed by the Secretary of Agriculture. The disease recently was found to exist among sheep on the island. Under the quarantine sheep may be moved from the island to any State other than California only in accordance with the Federal regulations designed to prevent the spread of the infection.

314,936 TRACTORS TO BE MADE IN 1919, TRADE'S ESTIMATE

A production of 314,936 tractors in the United States in 1919 is estimated by manufacturers reporting to the Office of Farm Equipment Control, United States Department of Agriculture. The reports obtained in a special inquiry by the department show a production of 132,697 tractors in 1918. The manufacturers gave the number of tractors of different sizes manufactured last year and estimates of the number of each size that will be made this year. The figures for 1919, of course, are merely estimates and represent the aggregate of the estimates submitted by the tractor manufacturers in January and February of this year. A summary of these reports follows:

	Number.
On hand Dec. 31, 1917	15,525
Manufactured during 1918	132,697
Sold in the United States during 1918	96,470
Sold for export during 1918	36,351
On hand Dec. 31, 1918	15,401
Manufacturers' estimate of production for 1919	314,936

Number of tractors of different horsepower manufactured in 1918.

Makers' rating—Belt horsepower.	Number of tractors.
9, 10, and 12	1,141
16 and 18	20,629
20 and 22	72,238
24, 25, and 26	20,616
27, 28, 30, and 32	6,959
35 and 36	2,212
40 and 50	1,331
60, 65, 70, and 80	913
Not given	6,658

NUMBER OF TRACTORS OF DIFFERENT HORSEPOWER WHICH MANUFACTURERS ESTIMATE THEY WILL PRODUCE IN 1919.

9, 10, and 12	8,220
16 and 18	48,545
20 and 22	157,671
24 and 25	40,875
27, 28, 30, and 32	27,465
35 and 36	5,435
40, 45, and 50	1,780
60, 65, 70, 75, and 80	1,536
Not given	23,409

Good roads are a prerequisite to successful motor truck operation. It is believed that few motor truck operators realize the increased expense which results from travel on poor roads.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

From Hen to Kitchen, 8,000 Miles.

Eight thousand miles to market is a long way for even staple foods to travel, but when eggs make such a long trip it is "going some." These eggs—3,500 cases of them—came all the way from China to New York City, via Vancouver, and traveled slowly by boat and train.

When they arrived at New York they were examined by a representative of the Bureau of Markets, Department of Agriculture, who reports that the eggs were packed in cases similar to the ones used in domestic trade but made of heavier material, resembling pine, of about the same thickness as is used in domestic export cases. The average net weight of eggs per case was about 40 pounds.

The Chinese eggs were of a deep brown color and slightly smaller than the average domestic egg. The shipment showed losses of from 12 to 18 eggs per case. Under the light, some of the eggs showed quite a heavy shrinkage, while others were very full. The whites were weak in a number of eggs, and when they were broken showed very watery, though the eggs were sweet, and the yolks stood up well. The shells of these eggs are much thicker than the average American egg, and the yolk is of a somewhat deeper color. When candled these eggs are said to make first-class cheap eggs for the use of bakers and hotels and for cooking purposes. As received, before candling and repacking, they sold at about 3 cents below the quotation for firsts.

China is one of the principal sources of dried and powdered eggs. Manufacturers of prepared products in this country are said to be interested in the possibilities of dried and powdered eggs, especially in view of the increased use of such products in ready-mixed flours and in bakeries.

Soldiers Interested in Farming.

At Camps Upton, N. Y.; Dix, N. J.; Custer, Mich.; Gordon, Ga.; Lee, Va.; and Meade, Md.; the soldiers about to be discharged have displayed great interest in buying and renting farms as well as securing positions with reputable farmers. Many of the discharged soldiers have already obtained employment through the efforts of the Office of Farm Management of the United States Department of Agriculture in cooperation with the Department of Labor. Farmers the country over are hiring as much labor as their spring work justifies, and there is a big demand for farm labor in approximately all agricultural sections. Oregon, which recently had a large labor surplus, now is in the market for more farm help, while Nevada stockmen are in need of more than 600 cowboys, sheep herders, and farmers. Ohio farmers need half a thousand helpers, according to most recent reports. The first refusal of these positions is given to the soldiers at the various camps, and if the Department of Agriculture is unable to obtain the necessary men from the Army camps the requisite labor is secured through other channels. All conditions seem to indicate that there is plenty of farm work for all who are experienced and competent in agricultural activities.

Helping the Melting Pot Melt.

One of the best ways to start Americanizing aliens in this country, the United States Department of Agriculture believes, is to teach better standards of living. For that reason the home-demonstration agents under the direction of the United States Department of Agriculture and the State colleges will devote much time in 1919 to foreign women. The instruction given by the extension workers is carefully adapted to the tastes and habits of various nationalities. In Newark, N. J., the majority of the foreigners are Jews, Italians, or Poles. The care taken not to offend is more than compensated by the cordiality accorded the home-demonstration agents. Work with Jewish people is confined to subjects which do not infringe on their dietary laws. One of the Newark home-demonstration agents, a Jewess, has induced many of them to try new and better habits of diet and living. The right kind of food to give children of various ages is taught wherever necessary, and coffee and tea drinking by children—common in foreign sections—is discouraged. The Jewish diet usually lacks fruit and vegetables, so the extension workers emphasize their value in the menu.

To Study Retail Meat Marketing.

A country-wide inquiry into the retail meat business is to be made by the Bureau of Markets, United States Department of Agriculture. The survey will include a comprehensive study of retail meat markets covering "cash and carry," delivery, "chain stores," and public-market stalls in a number of selected cities representing different types of trade and different local conditions. Efforts will be made to determine the most effective means and methods for the introduction of economics and the increase of efficiency in the distribution of meat from the wholesaler to the consumer. An information service for the aid of retailers, city and State officials and others interested, is included in the plans as outlined by the Bureau of Markets.

The work will be under the immediate direction of John A. Kotal, formerly a successful retail meat dealer of Chicago, who for a number of years was national secretary of the United Master Butchers of America.

The results of these inquiries will be published from time to time, and the bureau anticipates that significant improvements will be suggested and made possible by the studies of this phase of the meat industry, in which the producer as well as the consumer and the trade are vitally interested.

Growers Get Their Own Price.

That it pays to list products for sale with local representatives of the Department of Agriculture is shown by the experience of growers in Arkansas as reported by the field agent in marketing at Little Rock. This agent attended a meeting of sweet-potato growers and found out where stocks were held. Shortly after this a sweet-potato buyer dropped into the agent's office and asked where he could buy a few cars. The agent told him, and before the buyer finished shipping he had bought 10,000 bushels in that neighborhood, for which he paid the growers their price f. o. b. cars, furnishing the packages himself.

The Sacking of the Orchards.

The sacking of the orchards will begin in many sections of the United States about the third week in May—not as the Huns did it in the fruit lands of France, but a protective sacking, literally, with cheesecloth, against another ruthless horde, to wit, the "17-year locust." This pest will occur over 21 States, coming out perhaps the last week in May. The injury inflicted by it con-

sists in splitting the tender branches of trees for depositing eggs. The greatest damage is to very young fruit trees. Expert advice has usually been to defer the planting of young fruit trees until another seasou; but the United States Department of Agriculture, realizes that to defer planting, particularly where trees have been bought and the ground prepared, would entail a considerable loss. Therefore the advice offered is, defer planting until 1920 if feasible. Otherwise put out the trees and protect them with cheesecloth coverings. Such protection can be made practically absolute. The coverings need not be put on until the insects have emerged from the ground, when it can be determined whether or not they are sufficiently numerous to make covering of the trees necessary. Once put ou, the coverings should be allowed to remain until the insects are gone. The protection can be made practically absolute. The cheesecloth should be gathered and tied in below the branches and extend upward to cover practically all the foliage, being gathered in and tied at the top in such manuer as to leave a small cluster of leaves free. This method can be applied, if necessary, to trees of last year's plauting. In areas likely to be heavily infested pruning should be postponed until the insects have disappeared, when pains should be taken to remove injured wood and to reshape the tree where necessary.

More Herds Tuberculosis-Free.

The 165 veterinarians of the Uuited States Department of Agriculture who are in the field doing tuberculosis eradication work, together with an equal number of State men, have tested approximately 500 pure-bred herds and found them free from the disease. The owners of these herds have beeu given an official certificate, stating that they have tuberculosis-free accredited herds. The veterinarians also have giveu one test to 2,000 herds in preparation for the accredited list. The owners of all these herds, together with the breeds and number in each herd, will be listed in a publication soon to be issued by the department. Figures show that duriug the past eight months, or since July 1, 1918, 300 accredited herds and 1,000 herds that have passed one test have been added to the list. The veterinarians now have under supervision 1,200 herds of pure-bred cattle and 600 herds of grades which have shown by previous tests that one or more animals have tuberculosis. The publication lists 1,100 owners of grade cattle which have successfully passed the requirements for tuberculosis-free accredited herds. It is estimated that this disease causes an anuual loss of $25,000,000.

Saving Money by Killing Rodents.

Farmers are averaging a saving of $20 for every dollar invested in killing rodents in campaigns conducted under the supervision of the Bureau of Biological Survey of the United States Department of Agriculture, cooperating with the State extension service and other State organizations. Projects have been developed in Western States to destroy ground squirrels, prairie dogs, gophers, and jack rabbits, and in the past season over 17,000,000 acres were given a first treatment with poison and about 8,000,000 acres were re-treated in follow-up work with an estimated crop saving of $13,000,000. In many places from 5 to 20 per cent or more of the cereal crops are destroyed by ground squirrels and prairie dogs, so that in grain production in infested regions rodent pest coutrol is an important factor in the farm program. In Kansas pocket gophers damaged the alfalfa crop, valued at $50,000,000 in 1917, at least 10 per cent, making a loss of $5,000,000 during that year. In New Mexico it is reported that the pasturage capacity was reduced at least 6,000,000 acres by prairie dogs, and that if these rodents were eliminated the pastures would carry not less than 400,000 additional cattle or 1,500,000 sheep. The Biological Survey has cooperated with many of the States in the purchase of strychnine and saccharin to eradicate these pests and the westeru campaigns are planned so that the farmers get the benefit of the Government contract rates. In Idaho $6,000 was saved on the strychnine supply last year through this arrangement.

New Bean for Northern Latitudes.

A relic of American Indian farming, the Great Northern white bean, grown extensively in Montaua, North Dakota, and South Dakota, is of extremely early maturity. Otherwise it would fall victim to frosts, as it is growu farther north than auy other bean. This bean was first marketed in large quantities during 1918 when, due to emergeucy needs for food, 40 carloads were sold at Billings, Mont. According to the United States Department of Agriculture, this variety is uot adapted for culture south of the States named, and conditions indicate it should uot be planted in the bean-growing sections of either New York or Michigau. It is a white bean and accordingly is a good seller, although its size and shape is such as to make it necessary to educate consumers concerning its value. The Federal department has arranged for the distribution of all the Great Northern bean seed it has available.

Use for Waste Corn Cobs.

A big Middle West hominy plant is to install on a large scale the process for the mauufacture of corncob adhesive developed by the Uuited States Department of Agriculture. This adhesive, a dark brown, gummy substance, is said to be suitable for use in making fiber board and paper boxes, bill posting, labeling, and wherever a colorless adhesive is uot required. The process of manufacture is simple and the yield is large, the grade A adhesive amounting to as much as 45 per cent by weight of the corncobs, and the grade B to as much as 30 per cent additional. If this material should replace all other adhesives, enough could be manufactured from 3 per cent of the corncobs produced in the United States to meet the demand. Use of this substance in place of starch, dextrine, and flour paste would make possible an enormous saving of these foodstuffs.

Corncobs have always been oue of the great waste products of American agriculture, yet the chemists of the Department of Agriculture have proved that practically the entire cob can be converted into valuable substances. About 37 per cent, by weight, of the cob may be converted into crystalline glucose. The cellulose remaining after the adhesives are removed is practically a pure product, very absorbent, and might be used for a number of purposes. Alcohol can be mauufactured by fermentation of the corncob glucose. A certain amount of sugar may be obtained from the cobs. About 2.5 per cent, by weight, of acetic acid is recovered as a by-product in the manufacture of the corucob adhesive. Whether it will prove profitable to recover all of the by-products in the manufacture of adhesives can only be determined by commercial development.

Yards for River-Shipped Stock.

New stockyards known as the River Stock Yards, East St. Louis, Ill., have just been completed and were opened for active business March 1, 1919. The uuusual thing about these yards, according to representatives of the Bureau of Markets, United States Department of Agriculture, is that they were built for handling river business exclusively, a traffic that is iucreasing in volume. Seven boats plying on the Mississippi, Missouri, Illinois, Ohio, and Tennessee Rivers will deliver, it is expected, considerable numbers of cattle, hogs, and sheep to these yards. The yards are of modern construction and have a capacity of 2,000 hogs or 1,000 cattle. The unloading facilities are of the best, as the yards

were located about 150 feet from the river at low water, with direct connection with the boats at high-water level. Loading and unloading chutes for cars and double-deck loading chutes for auto trucks are also provided. The yards are accessible by good auto roads and are connected by the Terminal River Railway Association with all railroads entering East St. Louis and St. Louis, Mo.

More Hogs Ride Trucks to Market.

Motor trucks are being used more extensively than ever before to haul hogs to market, according to reports by representatives of the Bureau of Markets, United States Department of Agriculture. During the period beginning with October and ending with February, just past, the proportion of wagon and truck hogs in the total receipts at the Peoria, Ill., stockyards was nearly double that for the corresponding five months two years ago. A total of 50,380 hogs were brought to the yards in wagons and trucks during the five months of the past winter, or about 19 per cent of the total receipts, as compared with 16 per cent for the same period a year ago and 10 per cent two years ago. Increased production and attractive prices no doubt were responsible for some of the increase, the representatives say, but there is a growing tendency to send hogs to market in motor trucks instead of by rail where the distances are not great. This tendency is also shown at other markets. At the Cincinnati yards, for example, 139,972 hogs were brought in by truck and wagon during 1918, as compared with 77,232 arriving in similar conveyances in 1917.

Helping Women Sell Products.

How to obtain a fair price for the products they have to sell is always a live problem with farm women. Realizing its importance, the home-demonstration agent places it near the top in the budget of conditions she hopes to remedy. Many different ways to accomplish the same end are being used. In Cheshire County, New Hampshire, the home-demonstration agent is working with the country women's organizations to provide a market for all canned foods, eggs, butter, and cottage cheese. Three big reasons for lack of marketing success in the past have been that the farmers' wives did not know where to sell, they needed salesmanship knowledge, and they tried to sell products which were not standardized. The home-demonstration agent shows the farm woman how to bring her products up to the accepted standards and help her to find a market for the surplus.

VARIATIONS IN OATS PRICES TRACED TO PRODUCTION AREAS

Location a Big Factor in 1910–1914, Studies Indicate

Zones of Low Returns Coincided with Places of Dense and Surplus Growing; New Bulletin Gives Information

What is the price of oats? That depends to a large extent upon in what part of the country the oats is grown. The Bureau of Crop Estimates, United States Department of Agriculture, which has been studying variations in the price of oats for the five years 1910–1914, and which has published its findings in Department Bulletin 755, has found that farmers in Florida, Georgia, and South Carolina received more than twice as much for their grain as did growers in the North Central States. Records show that the zones of low prices for oats coincide with areas of dense and surplus production; in other words, the great bulk of the crop is grown in the sections of lowest price.

Lowest prices were paid for oats to farmers, according to the bulletin, along the northern boundary of the United States, from Ohio westward. The minimum price was in adjoining parts of North Dakota and Minnesota, in the north-central part of the country. From this zone the price levels of oats graduated upward in various directions. Eastward through the grain belt, as far as Ohio, prices rose slowly, but through the Atlantic States a more rapid rise took place; the increases also were gradual westward toward the Pacific coast. It is in the South that the higher prices were most notable.

Much Oats Used at Home

The reason for the wide geographic variations in the price of oats is due, the crop statisticians say, to the fact that the bulk of the crop is fed to animals on the farms were it is produced. Less than 4 per cent of the national production was exported in 1911–1915, on an average. Farm consumption absorbs 72 per cent of the crop. According to the 1909 census only a third of the harvest is sold, the remaining two-thirds never leaving the counties in which it is produced. A small part of the third sold is shipped back to farms for consumption.

Urban markets receive about a third of the national production, including the export oats and the small percentage shipped to farms. In urban consumption the chief item is the requirement for horses. Other items are the quantity which enters merchant flour mills, about 50,000,000 bushels, and the use of higher grades for human food in the form of rolled oats and breakfast foods. The 1909 census reported 50,000,000 bushels consumed in merchant flour mills, of which 36,000,000 bushels were manufactured "chiefly for human food" and 14,000,000 bushels "chiefly for stock feed." In 1909 the quantity entering custom flour mills was reported to be 13,000,000 bushels. The total average production was nearly 1,230,000,000 bushels.

Where Production Centers

Three-fourths of the national oat crops of 1911–1915 was produced within the two divisions comprising the North Central States, which contain but 17 per cent of the total land area. This area embraces the regions of lowest farm price. It is the greatest grain and live-stock producing region, and most of the oats raised is consumed locally. However, the fraction of the crop which moves from this section constitutes the bulk of the commercial crop in the United States.

Nearly 84 per cent of all the oats entering general trade channels originates within the North Central States. Yet this 84 per cent of the total commercial oats constitutes only a third of the production of this region, the remaining two-thirds being consumed on the farms where grown. The oat crop of the Pacific Northwest, with that of adjacent territory, enters normally into a distinct trade westward, the surplus over domestic needs being exported via the Pacific.

The bulletin contains a number of tables giving data relative to the production and price of oats, together with a list of all the countries in the United States and the average prevailing farm price for oats in each during the period 1910–1914.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces open competitive examinations for the positions below, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, for investigator in foreign marketing of agricultural products, for duty at Washington, D. C., or in the field, at salary ranging from $1,800 to $3,000; agricultural trade commissioner, for duty principally in foreign countries, at salaries ranging from $2,400 to $3,600.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Hessian Fly, Wheat's Worst Enemy, Likely to Come This Year in Increased Hordes

Knowledge in possession of experts of the United States Department of Agriculture leads to the belief that the Hessian fly, the worst enemy of wheat, has begun gradually to increase. The percentage of infestation, according to the fall count, showed a distinct increase over that of last year. The principal controlling parasites are apparently absent or very scarce, particularly in the Middle West. Another outbreak of the pest is expected, perhaps within the next few months. The accompanying illustration, which is being distributed by the department as a poster, presents the means of combating it.

Among insect crop pests in the United States, the Hessian fly stands first in evil reputation and possibilities. In bad years, hundreds of thousands of acres of wheat may be totally destroyed or the yield reduced as much as 75 per cent by this parasite.

Named for Mercenaries

The Hessian fly is not a native of America and nobody knows just whence it came or how. It was first noticed in 1779 on Long Island, N. Y., in the vicinity of the place where Lord Howe's army, largely of Hessian mercenaries, had camped three years before. The popular belief was that the Hessians had brought the insect over in the straw used by them as bedding on board ship. Thus came the name—and that guess is as good as any as to how the fly got here. All that can be authoritatively said is that it arrived from some transatlantic country some time after the middle of the eighteenth century.

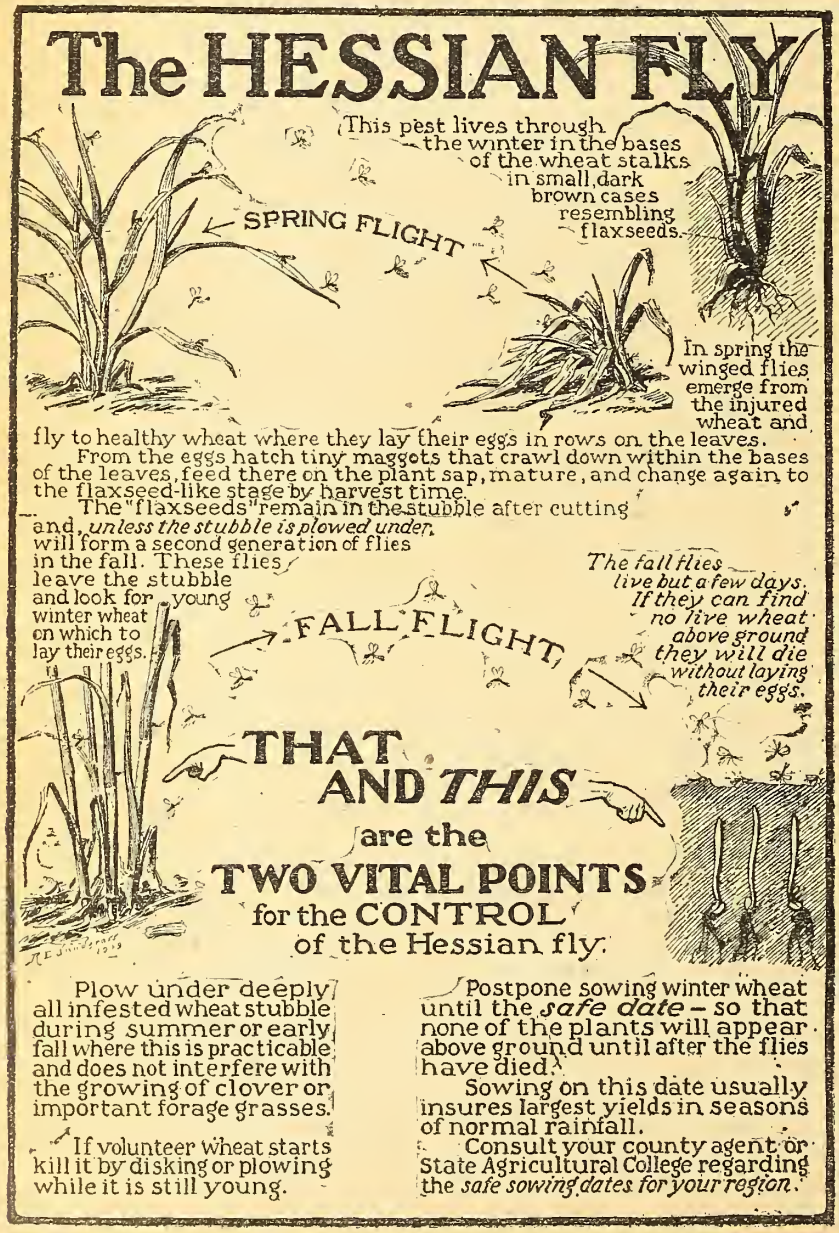
The Hessian fly is one-tenth of an inch long, of an obscure dark color, and appears much like a very small mosquito. It lays a glossy red egg one-fiftieth of an inch long, from which is hatched a maggot slightly smaller than the egg. This transforms into a pupa that appears like a flaxseed and is so called. From the flaxseed the adult fly emerges. Here are four forms so extremely unlike as to be confusing to any except the expert entomologist.

The fly usually deposits its eggs in grooves on the underside of the leaves of wheat. The larva, shortly after hatching, makes its way down the leaf and behind the sheath, continuing in young wheat to the roots of the plant. In older wheat it is able to go only to the joint below. Larvæ are frequently so numerous as to be packed one against another and overlapping. Two generations a year are produced. Overwintering is accomplished in the flaxseed stage.

Destructive to Wheat

The Hessian fly feeds chiefly on the wheat plant, and in a smaller measure on barley and rye. The oat plant is immune. The effect is that if infestation begins while the wheat is young, the plant grows without stem and becomes a mere mass of overgrown leaves. If infestation comes after jointing has begun, the straws break over and the wheat falls before harvest.

The distribution of this pest includes North Africa, Western Asia, all of continental Europe, the British Isles, New Zealand, and portions of the United States and Canada. In the United States its range extends from the Canadian border as far south as northern Georgia, and west to western Kansas and the middle of the Dakotas. It includes, also, a narrow strip of the Pacific Coast from Puget Sound to a point halfway down the California coast.



Good tomato land is neither extremely rich nor very poor, but just such land as would grow extra good corn or cotton. Land that was manured heavily the previous year will generally grow good tomatoes.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI — APRIL 16, 1919 — No. 37

DEPARTMENT URGES FARMERS TO BUY ONLY LABELED SEEDS

Purchasers Entitled to Know What They Get for Their Money

Many Seed Dealers Have Failed to Observe Agreement Made with Government in 1917; Have Facilities for Testing

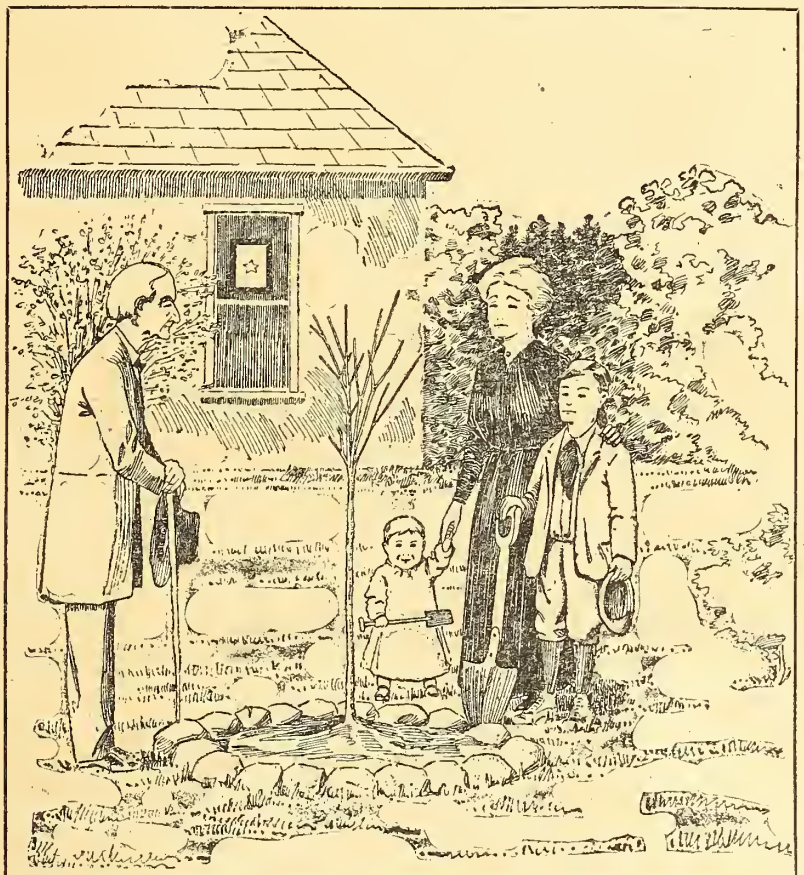
"Buy labeled seeds," is urgent advice to farmers from the Bureau of Plant Industry, United States Department of Agriculture.

No farmer can afford to sow field seeds unless he knows their quality. If he buys clover seed, he should know how much of it will grow and how many weed seeds it contains. If he buys orchard grass seed, he should know how much chaff it contains and how much of the seed is dead. If he buys seed corn, he should know whether it is adapted to to his climatic conditions and how much of it may be expected to make plants in the field in a favorable season. If he buys a mixture of alsike clover seed worth $20 a 100 pounds, and timothy seed worth $10 a 100 pounds, he should know what proportion of each the mixture contains, and how much of each kind will grow. If the farmer does not have this kind of information he is not sure of getting a crop even in the best of soil and with the best of weather conditions. It is not good business to pay the expenses incident to farming operations, including interest, taxes, and labor, and run the risk of not getting a stand in the field.

Many States have laws regulating the sale of farm seeds, restricting the sale of low-grade seed and requiring the seller to make certain statements as to their quality. Many farm seeds are sold by dealers in one State to farmers in nearby States, thus becoming interstate trade and therefore not subject to State law.

With a view to bringing about some means by which all agricultural seeds passing in commerce might be properly labeled, the Secretary of Agriculture, in the summer of 1917, asked representatives of the seed trade to meet in Washington. It was proposed at this meeting that seedsmen should label all farm seeds sold in lots of 10 pounds or more with the percentage of pure seed and the percentage of germination, together with the date of the germination test. The majority of the seed trade agreed to com-

(Continued on page 11.)



PLANT A TREE ON ARBOR DAY FOR A LOVED ONE WHO IS GONE

DRAWN FOR THE WEEKLY NEWS LETTER BY G. D. GEORGE

ARMY'S AIRCRAFT WILL HELP TO COMBAT FIRES IN FORESTS

Airplanes and Balloons to Soar Above National Woodlands

Forest Service Officials and Army Men Mapping Out Experiments; May "Bomb" Blazes; To Report By Wireless

Army airplanes and captive balloons will cover portions of the national forests of California, Arizona, New Mexico, and other States this summer, to aid in detecting and suppressing forest fires. In compliance with an order from Secretary Baker directing the Air Service to cooperate with the Forest Service of the United States Department of Agriculture in this work, conferences are under way to determine where and to what extent the air scouts will supplement the forest rangers.

That there is a distinct and important place for aircraft in fire protection of timberlands is regarded by the Forestry officials as beyond doubt, but experimental trial of methods and possibilities will have to be the first step. This is now being planned for the coming fire season. Army airdromes and bases will be utilized for the experiments. Some of the bases near enough to national forests to be used advantageously are the flying fields at San Diego, Riverside, and Arcadia in southern California. Other points in the West and in the East are under consideration, including one near the White Mountains in New Hampshire.

One of the interesting possibilities to be tested is bombing fires to put them out. It

is believed that bombs charged with suitable chemicals can be used with good results. Another plan to be tested is transporting fire fighters by dirigibles from which ladders can be lowered to the ground.

The chief use of the aircraft this summer, however, will be for fire detection. At present the Forest Service relies for this partly on patrol, usually by men on horses, motorcycles, or railroad speeders, and partly on watchers stationed at lookout points. Aircraft have many points of obvious superiority for both classes of detection work.

To Report by Wireless

Lookouts in a very broken country, cut up by deep canyons or where mountain ridges obstruct the view, or in a flat country that affords no good points of vantage, are often unable to pick up all fires quickly by the rising smoke, or to locate them accurately. For precise location the system in use depends on triangulation through reports telephoned from separate observation points. Airplanes would use wireless in reporting fires, as they have done in communicating with the artillery, and would locate fires by coordinates in the same way that gunfire in war is directed to a particular spot or object.

From the Army standpoint, the use of aircraft in protecting the national forests affords a valuable opportunity for training fliers and developing further the possibilities of aircraft and the art of flying.

SELL JELLY TO MULTIMILLIONAIRE

The club girls in Palatka County, Fla., have a new customer for their jellies, jams, and marmalades in the person of a man who is 33 times a millionaire. While in Florida last winter he was served with some of the famous 4–H brand made by the girls' club, supervised by the home demonstration agents of the United States Department of Agriculture and the State college. So pleased was he with the delicious sweets that he went to the home demonstration agent of the county and contracted for all the marmalades and jellies the girls in the county had in reserve.

A garden that produces only one crop and idles away half of the growing season does only half of its duty.

Hay stackers can be used to advantage on many farms east of the Mississippi River as well as west.

To meet a rainy day and enjoy a sunny opportunity—buy War Savings Stamps.

New Feterita To Be Tested This Year; Has Advantages Over Other Varieties

Spur feterita, developed by the Texas Experiment Station and now being distributed in various sections of the country for experimental purposes by the United States Department of Agriculture, excels the common feterita in yield, leafiness, and strength of stalk. Because of its dwarfiness and its heavier stalk, it is much less likely to lodge than common feterita; in addition it carries one-third more leaves, the leaves are longer and broader, and it matures only a few days later. In 1916 it produced 8 bushels, and in 1917 10 bushels more an acre than common feterita.

Feterita should be planted three or four weeks later than Indian corn, as the softness of its seed and its quick absorption of water make it more susceptible to decay before germination than any other grain sorghum. On this account it should never be planted until the soil is thoroughly warm. In case local conditions necessitate early planting the seed should be sown unusually thick. Feterita is generally planted in lister furrows, but occasionally it is surface planted with the ordinary corn planter. The first method is preferable in the semiarid sections. Generally from 4 to 5 pounds of seed are needed to plant an acre where the rows are 36 to 42 inches apart, although under particularly favorable conditions a fair stand may be secured from a seeding of 1½ pounds to the acre.

Cultivate Like Corn

This new feterita should be cultivated about the same as Indian corn. Two or three harrowings while the plants are small, followed by one deep and thorough cultivation and two or three subsequent shallower cultivations, are ordinarily adequate to make a profitable crop. Late cultivation should always be very shallow in order to avoid the surface roots.

Where the crop is desired for both forage and grain production it should be cut in the late dough stage, using a corn binder where possible and setting the bundles into shocks of 20 to 30 each. Where these shocks are allowed to stand in the field for some time before being headed more complete maturity of the grain is attained. Where the crop is intended solely for grain it should be allowed to stand until the earliest heads are fully mature. But it must not be left until all the heads are dead ripe, or else considerable seed may be lost through shattering. Where the crop is headed directly in the field it is advisable to pasture the aftermath. In case the crop goes down on account of a storm before harvest the damaged forage should be pastured to hogs and cattle.

Feeding to Stock

The forage value of Spur feterita is equal and often superior to that of milo, although for strictly forage purposes feterita is always excelled both by the kafirs and the sweet sorghums. The heavy production of grain, however, makes Spur feterita valuable when fed in a bundle, heads and all, to work horses and stock cattle and for fattening sheep and cattle. It is not so valuable for dairy cows. For silage uses it is equal to any of the other sorghums, while as a grain it will rank with the kafirs and milos, 10 bushels of it being considered equal in feeding value to 9 bushels of shelled Indian corn. The supplemental use of small quantities of cottonseed meal or other concentrate high in fat will greatly increase the effectiveness of the feterita as a flesh producer.

Farmers who obtain seed of Spur feterita this year are advised by the specialists of the United States Department of Agriculture to exercise great care in planting the seed, so that any surplus seed from the 1919 crop may be pure and available for an extension of the acreage next year. The seed crop preferably should be planted on land not used for growing sorghums during 1918, and in any event rogues should be removed from the field before they have blossomed.

It is desired that Spur feterita be carefully compared with crops of common feterita, Dwarf milo, and similar grain sorghums. Although extraordinary yields are not anticipated, it is expected that under ordinary conditions Spur will be more productive than the common feterita.

The Department of Agriculture has no additional seed of this new variety of feterita for distribution, as arrangements have already been made for distributing all the seed that is available.

The prospective motor truck operator should communicate with the Public Service Commission or such other body as may have jurisdiction over the operation of trucks in his territory and inform himself in advance as to legal rectrictions covering the operation of trucks on the highways.

Avoid "Locust Loco" This "Locust Year"; Cicada and Grasshopper Often Confused

This is a "locust year," and the usual popular fear and misapprehension attend.

People in that large part of the United States over which the periodical cicada will appear are disposed, as always, to apprehend greater damage than will occur—many times greater. Of the remainder of the United States, large sections are under another misapprehension, which is that the insect about to appear is the real locust that sometimes comes in devastating hordes, sweeping across large sections of country and devouring every green thing. The latter misap-

Periodical Cicada, or so-called 17-year locust.

prehension is, perhaps, the more widespread and disquieting, according to entomologists of the United States Department of Agriculture. People who have had experience with the real locust and the ruin it works never forget, and the word "locust," even though it be a misnomer, is likely to be a signal for dread.

Now, the periodical cicada, commonly called the 17-year locust—the insect that will appear in 21 States this spring—is not a locust at all. It is a cicada, member of the family Cicadidae and akin to the dog-day cicada, or dry-weather fly. The real locust—the devastating kind—is a grasshopper.

The periodical cicada, miscalled locust, is strictly an American insect. The real locust, commonly called grasshoppers, occurs in many parts of the world and has had its place in history for thousands of years. There are many species. The Schistocerca peregrina is the one that plagued the Egyptians and probably the one on which John the Baptist fed. The one that has sometimes ravaged the great plains and other sections of the United States is the Melanoplus spretus, a related species.

Have Little in Common

The real locust or grasshopper and the so-called locust or periodical cicada have very little in common—nothing, in fact, except that both occur in larger numbers and both occasionally have been used as human food, the former mostly by certain peoples of the near East and the latter by the Indians.

The real locust is an indiscriminate eater, grain fields, cornfields, meadows, pastures, weed patches—everything falls before him. The periodical cicada or so-called locust is dainty almost beyond belief. It was long believed that this insect in the adult stage took no nourishment at all. On rare occasions it had been observed with its beak apparently thrust into twigs, but it was not until 17 years ago, the last previous appearance of the large brood that comes out this year, that it was definitely determined that this belief was erroneous. The "17-year locust" does eat while in the adult stage, but its diet is confined to the juices of plants, sucked out in very small quantities and without causing appreciable injury to plants.

So far as periodicity of outbreaks is concerned, the real locust or grasshopper is a law unto itself. The hordes may appear any year or not at all. The hordes of the "17-year locust" or periodical cicada appear with a regularity that would almost put to shame a Government clock. In spite of their extremely slow development under ground the multiplied millions of individuals reach maturity and emerge almost at the same moment and exactly 17 years from the date of the previous appearance—that is, if they are of the 17-year race. There is a 13-year race of the periodical cicada, but it is just as regular, just as exactly on schedule, as the other one.

Real Locust a Nomad

The real locust is a sort of nomadic militant. Its hordes, like those of Attila

Real locust, or grasshopper.

the Hun, or of Genghis Khan, sweep hither and yon, always on the move, destroying as they go. The so-called 17-year locust or cicada is a home body. Stevenson's lovable character, "Will o' the Mill," did not stick so closely to his birthplace as does the periodical cicada. Literally, he abides always "under his own vine and fig tree." The tree from which any individual cicada dropped as a newly hatched larva 17 years ago is the exact tree under which he will emerge this spring, up which he will most likely crawl to cast his pupal skin, and in which he will meet his mate and sing his love song, in which he will pass his days of decrepitude, and from which, in a few weeks, his dead body will fall, almost upon the spot where he—as a larva—fell 17 years before and burrowed into the ground. Where the periodical cicada came into existence, there he spends his days and dies.

Every crop suffers from the ravages of the real locust. Only trees suffer at all from the 17-year locust, and only very young fruit and ornamental trees are likely to be severely injured. Methods of preventing or minimizing this loss have been worked out and published by the Department of Agriculture.

The insect itself can accomplish comparatively little damage, but fear of the insect may accomplish a great deal, particularly if it is based upon a confusion of the cicada-locust with the grasshopper-locust. Men, believing that the grasshoppers are to eat up their crops this spring, might refrain from planting certain things. It is important, therefore, that the confusion be cleared up, that it be definitely understood by everybody that "the 17-year locust in 1919" means the periodical cicada and not grasshoppers.

DEPARTMENT MEMORIAL PLANNED

To perpetuate the honor and memory of their fellow workers who have made the supreme sacrifice in the great war, the employees of the United States Department of Agriculture are planning to erect a memorial—probably a stone drinking fountain—in the department grounds in Washington, D. C. A bronze tablet bearing the names of the fallen is to be placed on the memorial.

The plan has been approved by Secretary Houston, and informally by the Fine Arts Commission of the District of Columbia. Congress will be asked to authorize the erection of the memorial in the department grounds.

Funds for its erection are being provided by popular subscription among the more than 20,000 employees of the department.

Anyone who is familiar with the methods followed in planting and cultivation of cotton will have no difficulty in growing okra. While okra has a very modest food value, it is a desirable addition to the crops grown in our southern gardens, and is especially desirable for canning with tomatoes for winter soup mixture.

SOUTHERN CROPS BRING MONEY WHEN MADE INTO BEEFSTEAKS

Investigations Show Profit from Feeding Steers on Corn and Roughage

Three Lots of Animals Used in Experiments by Department; Hogs Following Cattle Helped in Showing; Transit Shrinkage Small

That the southern farmer who raises a surplus of corn and farm roughages can market them at a handsome price through steers of good quality, when properly purchased, and can retain fertilizing elements of the feeds on his farm, is clearly shown in recent investigations by the United States Department of Agriculture.

Three lots of native steers, grade animals 2 to 3 years old, of medium to good quality, and averaging about 825 pounds at the beginning of the experiment, were fed for about five months on full feed. The animals in lot 1 received a daily allowance of 39.1 pounds of corn silage, 5.7 pounds of cottonseed meal, 4.9 pounds of oat straw; those of lot 2, 37.4 pounds of corn silage, 7.6 pounds of ear corn, 3 pounds of cottonseed meal, and 2.9 pounds of oat straw; and the steers of lot 3, 38.5 pounds of corn silage, 6 pounds shelled corn, 3 pounds cottonseed meal, and 3.5 pounds of oat straw.

Showing at Marketing Time

At marketing time these groups of animals averaged, respectively, 1,044, 1,059, and 1,066 pounds an animal, the beeves of lot 1 having accomplished a daily gain of 1.56 pounds, those of lot 2, 1.66 pounds, and the animals of group 3, 1.7 pounds during the feeding period.

When the pork made is credited to the steers of lots 2 and 3, they paid for corn at 70 cents a bushel, and then made over $14 a head profit, or almost as much income as resulted from the cottonseed meal-fed steers. Without hogs following the steers the feeding of corn would have been considerably less profitable than feeding cottonseed meal alone. It cost $9.53 to make 100 pounds of gain in the case of lot 1, $10.82 for lot 2, and $10.75 for lot 3, where no pork credit is given the steers. Each steer in lots 1, 2, and 3 made a net profit of $15.19, $11.87, and $11.48 respectively, when no credit is given the steers of lots 2 and 3 for the pork produced. This pork credit probably amounted to about $3 a steer.

Shrinkage in Transit Small

It is particularly noteworthy that the shrinkage in transit to market of these cattle during a 34-hour run ranged from 54 to 64 pounds a head, which indicates that silage, where properly fed in conjunction with supplementary grains, results in less shrinkage in transit than where cattle are fattened on grass and marketed directly from pastures. The steers under consideration in this experiment made good killing records, the carcasses being well covered with fat and generally satisfactory. The animals of lot 1 made a dressing record of 58.2 per cent, those of lot 2, 57.8 per cent, and those of lot 3, 57.4 per cent of marketable meat.

WAR BLAMED FOR DECREASE IN 1917 CUTTING OF LUMBER

The quantity of lumber reported cut in the United States in 1917 was 33,192,911,000 board feet, according to Department of Agriculture Bulletin 768, just issued by the Forest Service. This cut was reported by 16,420 mills. The output of 2,652 mills cutting less than 50,000 feet each is not included. An additional 2,470 mills were reported idle. It is estimated that the actual cut, on the basis of compiled figures, was 36,000,000,000 board feet. The reported cut shows a decrease of 4.6 per cent from the 1916 figures, and the estimated total production a decrease of 10 per cent.

Reasons for Decrease

The causes of the decreased output lie chiefly in war conditions. High costs of labor and material discouraged private building operations; for instance, in 101 of the principal cities the number of building permits issued fell off 23 per cent. The wood-using industries using hardwoods in products not essential to the war needs of the country curtailed their output. Scarcity of labor made it difficult for small operations to continue. Transportation difficulties and a more or less general dislocation of lumber distribution made it difficult to ship lumber for other than Government use.

Yellow pine, with a production of 13,539,464,000 feet, supplied nearly 38 per cent of the total cut. Douglas fir came next with 5,585,000,000 feet. Oak and white pine supplied 2,250,000,000 feet each.

Gain in Six States

The State of Washington was the largest producer, with a cut of 4,568,500,000 board feet; Louisiana was second with 4,210,000,000 feet; Oregon third with 2,585,000,000 feet; and Mississippi fourth with 2,425,000,000 feet. Only Washington, Louisiana, and Oregon—the three States highest in production in 1917—and Missouri, New Mexico, and Kansas show a larger cut than in 1916. In the other States, with the exception of Oklahoma, where the total cut was the same for both years, the output decreased. None of the gains were of much importance except that in Oregon, which amounted to about 16 per cent.

The restriction of building operations during the year had its effect on the production of lath. Reports from 1,456 mills showed an output of 2,281,738,000 pieces, a decrease of 17 per cent from 1916. There was a decrease in all the States except Arkansas, Florida, and Texas.

Shingle production decreased 7 per cent from the total 1916 manufacture. The reported cut was 8,696,513,000 pieces. The number of active mills reporting was 1,619. Only three States showed an increased production—Oregon, Louisiana, and Michigan.

Half of Wool Machinery Idle March 1; Drop in U. S. Work

Practically one-half of the wool looms and spindles in American mills were idle on March 1, 1919, according to the Bureau of Markets, Department of Agriculture. Of the looms wider than 50 inches, 58 per cent; of those under 50 inches, 42.4 per cent; and of carpet looms, 61.4 per cent were reported idle.

Among the machinery that prepares wool for spinning into yarn 39 per cent of the woolen cards and 47.8 per cent of the worsted combs were reported idle, while corresponding percentages in spindles were: Woolen 41.8 and worsted 52.7.

On November 1, just before the signing of the armistice, over half of the machines in operation, with the exception of narrow and carpet looms, were employed on Government orders. On March 1 no group of machines showed as large as 6 per cent on Government contracts, while in no group were there as many as 1 per cent working on double shifts.

Of the total machines in operation on March 1, from 3 to 17 per cent were reported as running 40 hours or less a week.

The bunch beans mature quickly and require frequent cultivation. The cultivator should be run through the rows at least once a week and then the hoe be drawn between the hills after cultivation. Never work beans when their foliage is wet with dew or rain.

Among the vegetable oils, that made from cottonseed stands in a class by itself with respect to its production in this country. In 1912 it constituted 73 per cent, and in 1917, when the cotton crop was unusually short, 61 per cent of the total production.

MILLION-DOLLAR GAIN PAYS COUNTY FOR SAFE FARMING

Mississippi Community Changes Agricultural System in Few Years

Depends no Longer on Cotton as Sole Return from Land; Food Crops Now Grown Mean Real Prosperity

Pontotoc County, Miss., has gone through an agricultural revolution in the past few years, and since 1916 has added nearly a million dollars to its cash reserves.

It is a hill county mainly populated by small white farmers. The average farm is 72 acres, of which less than half was scheduled as improved land by the last census. In 1910 44 per cent of the farmers operated their own farms, while 55 per cent were listed as tenants.

A county agent has been in the county for some years, but the effect of his work is just being realized fully. Pontotoc used to be mainly a one-crop county, with cotton as the main crop. The boll weevil has never seriously injured its cotton industry, but the county, prior to 1916, never produced enough food for its own use. In 1915 the farmers made a good average crop. It is estimated that $150,000 worth of food and feed was brought in that year. Until 1916 there had never been a carload of hogs, corn, molasses, sorghum seed, peanuts, or popcorn shipped from the county; its main cash income came from cotton and some lumbering.

What Was Done in Year

From January 1, 1918, to February 15, 1919, the county agent assisted the farmers in producing and shipping from the county the following products other than cotton:

320 cars corn, valued at	$384,000
24 cars peas, valued at	57,600
7 cars peanuts, valued at	14,700
15 cars sorghum, valued at	38,490
10 cars cane seed, valued at	11,200
7 cars popcorn, valued at	10,500
15 cars cattle, valued at	24,622
33 cars hogs, valued at	72,657
18 mixed cars hogs and cattle, valued at	31,647
Total value	645,416

Did this have an effect upon the finances of the county? It did, in two ways: First, because the county produced more of its own food and feed, more of its cotton money came back to the county in cash rather than in necessities purchased with cotton money; second, the farmers got a good cash income from their other crops besides cotton, mainly because the county agent showed them how to ship farm products cooperatively in carload lots.

Big Jump in Cash Reserve

On January 1, 1916, the total amount of deposits in the banks of the county was $549,592. The figures for 1918 are as follows:

Amount on deposit in the five county banks on January 1, 1919	$1,045,115
Liberty Bonds sold in the county during 1918	225,000
War Savings Stamps	275,000
Total	1,545,115

This is an increase over January 1, 1916, of $995,522, mainly accounted for from the ready sale of food and feed crops plus the saving of the cash money.

A single crop is always a menace, but a well-balanced agriculture means prosperity, declare the specialists of the United States Department of Agriculture.

FORESTRY TROOPS IN FRANCE SCHEDULED TO RETURN SOON

All units of the 20th Engineers (Forestry) still in France are scheduled to return to the United States by the middle of June, according to the latest embarkation orders.

Of the 85 companies of engineers and service troops, 23 companies are now working on the repair of roads. Lieut. Col. Greeley states that the peak of the Government's demands upon the forestry section for road work has been reached, and that it will now be possible gradually to release the various units, and that the embarkation schedule has been resumed.

The first battalion of the 20th Engineers, which reached France in November, 1917, was to embark early in March. Other units were to follow at intervals of every 15 days.

All of the sawmills have shut down, except the 11 mills operating in the fire-killed timber in the Landes. These mills will be in operation until about the 1st of May.

Demand for Timber Continues

The surplus stock of road plank, bridge timbers, and other thick lumber is being remanufactured at several plants into inch and 2-inch dimensions for current Army requirements. Contrary to expectation, the demands of the Army for timber have kept up to a surprising degree, and will use up all stock on hand. The material is needed for improvements at the large embarkation camps, for packing material, and for all sorts of structures at the divisional areas. Even the products from the fire-killed timber, the operations which it was thought would be turned over to the French, will be used by the American Expeditionary Forces. Some material will probably also be furnished the Belgium Relief Commission.

The appraisal of military damage to forests and farm lands, instituted in accordance with the general appraisal scheme of the peace commission, has been dropped for the time being. Twenty officers had been assigned to the work, which was to cover Italy, Belgium, France, Serbia, and Roumania.

Delays in Settlement

Many vexatious delays are being encountered in the settlement of the forest purchases. An adjustment of purchase contracts for timber which were but partly cut is underway to make the American Expeditionary Forces pay only for the timber actually cut. The records in every case will contain a map of the forest showing just what was cut, a final scale report, and a release from the owner for damages or claims arising from the operation. More than 300 transactions are involved. This work includes the problem of obtaining adjustment on the estimates of cessions from State forests, which in a number of cases are claimed to have been excessively high, and includes efforts to secure a reduction in price on certain of the State forests.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended April 5, 1919:

Address of D. F. Houston, Secretary of Agriculture, before the Governors' Conference at Annapolis, Md., December 16, 1918. Office of the Secretary, Circular 133.

The Tobacco Beetle: An Important Pest in Tobacco Products. (Professional Paper.) Department Bulletin 737.

Farm Practices in Grain Farming in North Dakota. Department Bulletin 757.

A Comparison of Concentrates for Fattening Steers in the South. Department Bulletin 761.

Production of Lumber, Lath, and Shingles in 1917. (Professional Paper.) Department Bulletin 768.

Cold Storage Reports, Season 1917–18. Department Bulletin 776.

Muscadine Grape Paste. Farmers' Bulletin 1033.

Growing Sugar Cane for Sirup. Farmers' Bulletin 1034.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Club Work Dispels Isolation of Life in Rural Communities

Who needs most the social and mental contact possible in organized club work? Who needs the inspiration and broadening influence gained in this work? Who can best appreciate the efforts of the club leader in his behalf? Who will work earnestly and patiently in his desire to achieve and excel? Who, but the boy or girl, or the group of boys and girls in an isolated rural community? In such a place, where opportunities for education and recreation are exceedingly limited, club work reaches the very apex of its usefulness, declare the specialists of the United States Department of Agriculture.

The following story is told by C. E. Campton, a club leader in Minnesota:

"In some sections where a community is off by itself, and where the people do not get to mingle with people from other parts of the country very often, you can not imagine anyone more welcome than are those who go into that community to hold fairs and to visit garden and potato plats. There are communities where the boys and girls have entered a potato or a garden club and have been in it for the past three years, and where not a single member who signed up has failed to complete his project. There is such a settlement at Castle Danger, and this year every member of that club sent down a peck of potatoes and exhibited some of his or her vegetables at the county fair. This exhibit was brought down with some difficulty. The boat which was to bring the exhibits broke its propeller about three miles down the lake from this settlement, but the boys and girls were not to be beaten out in that way. They loaded their exhibis into a small boat, brought them within 5 miles of Two Harbors, the lake being so rough they could not get any farther. They then secured an automobile and brought them the remainder of the way. The products were sold for the benefit of the Junior Red Cross."

CLUB GIRLS SHOW THEY CAN CAN

Thirty-four Louisiana parishes were organized for canning club and home demonstration work last year, and the girl club members put up and sold nearly fifty thousand No. 2 cans of tomatoes alone, in addition to many kept for home consumption. The summer drought cut down the yield of tomatoes, but notwithstanding it 1,237 tenth-acre plots were successfully cultivated by the girls. Forty-six community canners successfully operating in the State are reported by the home demonstration agents. These, with seven community kitchens, illustrate the growth of the community organization idea.

BOYS GET 26 PURE-BRED HOGS

A campaign to increase the live stock in Grand Forks County, N. Dak., is being carried on by the county agent and the leader of the boys' and girls' club work in the county. Junior live stock clubs are being formed and pure-bred stock is obtained for members. In one month last winter 26 bred gilts, all pure-bred registered Duroc-Jerseys, were distributed to the members of the pig clubs in Grand Forks County. At the county farm bureau meeting in February, one of the live stock exhibits was the pure-bred pigs being raised by the boys of the county. The pigs were also used for judging material at the meeting.

SIXTY-EIGHT OF SIXTY-NINE PLAN FOR COLLEGE

Thrift and increased ambition are direct outcomes of the club work with boys and girls, organized by the United States Department of Agriculture and the State agricultural colleges. The personal savings and property owned by many of the club members would rank well beside the savings of middle-aged men and women. Reports from a group of boys and girls in Michigan indicate what these young people are getting from their club work in good citizenship and development of proper habits for life in a farm community.

There are 195 members in this typical group. Forty-eight of them own Liberty Bonds; 134 have War Savings Stamps; 103 have bank deposits; 18 have earned kitchen equipment; 15 own pigs; 6 own sheep; 19 own calves; 25 own poultry. There are 69 of the group in high school and of these 68 expect to go to college.

Kenneth Campbell, of Blackwell, Tex., is a 15-year-old member of a boys' and girls' pig club organized by the Department of Agriculture and the State College. His pig was awarded the grand championship prize at the Fort Worth stock show, won $105 in prizes, and sold for $115.

How a Boy With a Will Found a Way of Making Maple Sugar

A Vermont boy, sledding one day early last spring, tested a tree with his jackknife to see if the sap was running. It was, and he became enthusiastic about joining a maple-sugar club. But when he consulted his father he found the equipment was not available.

He went to the agricultural teacher in his school from whom he learned where he could borrow a pan. But he could not get any buckets. However, with his father's help, he made some troughs out of basswood. He cut down some trees, sawed the trunks in sections about two feet long, split them in half, and then, with a great deal of work, hollowed out these pieces, thus making the troughs in which to collect the sap. The spouts were made of sumac branches about 16 inches long.

He began operations in a grove of maple trees about the middle of March and finished the second week in April, and in that time with this crude equipment made 60 pounds of sugar and 4½ gallons of sirup. The boy's father bought part of his products, giving him a pig as payment, and now through the club work the young man has started in another branch of agriculture.

CLUB BOY CANS HIS GARDEN; MEMBER OF CANNING TEAM

Seth S. Pope is a Barnstable, Mass., club boy who, in 1918, not only raised a good garden but canned over 200 quarts of the products himself. Because of his good work he obtained a place on the county canning team of three. Seth says in his report to the leader of the boys' and girls' club work in his county:

"I just about canned my garden this year; that is, what we couldn't eat fresh. Because I did, I am now able to enjoy at all seasons of the year the fruits of my labor. A garden of my own made it possible for me to be sure of getting fresh fruits and vegetables to can."

This youth has been one of the Barnstable canning team for two years. The first year the team's membership consisted of two girls and himself. Last year another boy supplanted one of the girls, so the team, in 1918, was composed

of two boys and one girl. They put on numerous demonstrations at meetings and fairs in Barnstable County and won a number of prizes, both for individual and team work.

CHAMPION DRAWS 80 CENTS AN HOUR FOR GARDEN WORK

Eighty cents an hour for working in his garden—that is what Ralph Baerman, of Fillmore County, Minn., earned in his one-tenth-acre foot plat. He was awarded the State championship in garden work in Minnesota last year, and in his report to the State club leader of the boys' and girls' club work, he says:

"For several seasons I had grown a garden with some success, and in 1919, I determined to secure even better results. I started my garden on three plats (all together comprising one-tenth acre) differing widely in soil, slope, and surroundings. Two had been, until the year before, waste land, and sprouted a healthy crop of bones and rusty cans in the wake of the plow. I made my plans according to conditions and adhered to them throughout the season to save time and confusion when there was real work to do. Desk farming is one of the most interesting features of the work.

"Tomatoes, cabbage, eggplants, and everything that needed an early start were planted about the 1st of April in four hotbeds of ordinary size. All surplus plants were easily sold.

"In May, 12 dozen tomato plants were transplanted and were coming along splendidly until one day I found a thrifty plant nearly cut off. This rather pleased me, as I had never seen a cutworm outside of a picture and I was glad to make his acquaintance. When the seedlings fell one by one, however, I decided I had seen enough of the pests. Happily, their depredations were stopped in time and there were plenty of extra plants to fill in.

"I raised about two dozen kinds of vegetables to provide a variety for the table, and for marketing large crops of tomatoes, peas, cucumbers, and celery were planted. I practiced both companion and succession cropping, or in other words, I had a spring, summer, and an autumn garden. Cultivation was practiced as often as was necessary.

"Canning was a big factor in making the garden a success. What we couldn't eat I sold, what I couldn't sell we canned; and what we couldn't can, I fed the chickens, so none was wasted. Our summer kitchen was our cannery and the wash boiler our canner. For nearly everything we used the one-period, cold-pack method and followed the directions sent out by the Government with excellent results. We 'put up' 221 quarts of tomatoes, beans, peas, carrots, beets, chard, sweet pickles, kohlrabi, tomato jelly and sauce, carrot conserve, dill pickles, limes, cabbage, tomato jam and mincemeat, eggplant, celery, and others. Since we desired a pleasing variety we canned 37 kinds from our garden and purchased some others.

"In all my work with the plants I kept this in mind—that the earliness, quality, and quantity of the product is dependent on the seed, environment (including weather, fertility, and shade) and the care given them. So I purchased the best seed obtainable, planted it when natural conditions were best, and cared for each kind as its peculiarity required. Where there is a deficiency in any of these requirements it can in part be made up in the others.

"The total receipts from the one-tenth acre were $150,48; subtracting $35.42 for expenses, a profit of $115.06 was left, or the equivalent of 80 cents per hour net for every hour spent working in the garden. Home gardeners will not have to strike for higher wages for some time yet. In addition, I had the good fortune to win a $45 prize for an exhibit of canned goods at the State fair. So I feel well repaid financially for my efforts."

Last year in the Northern and Western States 527,723 boys and girls were club members in regularly enrolled clubs of all kinds and 593,090 more had war gardens. The total reported valuation of all products grown was $6,019,092.26, and the cost of production was $2,447,313.54.

When Farm and Home Work Is an Interesting Game

A little girl in McLean County, Ill., has found club work to be interesting and a source of pleasure. During her first year in the poultry club she spent $10.45 for eggs, hens, feed, and equipment. At the end of the season she had birds valued at $20.50. Counting her own labor at $3, she made a profit of $7.05 in cash, plus the education, knowledge of business methods, wholesome mental contact, and recreation gained as a result of the club work. Here is her own story:

"I bought two galvanized coops and 30 Plymouth Rock eggs, which were tested, and last but not least, two Plymouth Rock hens at $1.10 each. I took care of my hens and at the end of the seventh day tested my eggs and found 24 fertile eggs. My mother cared for my interest while I attended school, and donated her service. At the end of three weeks I was proud of my hatch, having 24 fluffy, black chickens to my credit.

"We discussed our work at various meetings and had a little fun listening to each one's various experiences. I had no opportunity to exhibit my chickens alive—only when they walked out into the main part of Merna and solicited notice from the different automobile drivers who chanced to scare them.

"Since then a few have been exhibited on a platter in the center of our dining table, and I think if they could hear the many compliments given them there, both by words and actions, they would be justly proud.

"I am very much interested in my project, and will endeavor to work on a larger scale next year, with the foundation I now have. I think the various contests given from time to time and exhibitions and inducements will make the club work so interesting that I will be among many of those who 'make the best better.'"

One of the chief aims of boys and girls' club work is to pull the "stingers" out of toil and make hard work or the drudgery of farm and kitchen into an interesting game.

Pig-Club Boy Believes It's Wise to Learn by Experience

Experience pays—that is the belief of Albert McCutchan, of Montgomery County, Ind., State champion in the sow and litter project in 1918. And because he wished to learn by doing from the start, this club member himself selected and bought the sow he entered in the contest.

The hog was an immune, registered, big type Poland China gilt, and at the time of purchase in January she weighed 279 pounds. In April, nine pigs were farrowed, all of which lived. The litter averaged 44 pounds apiece at nine weeks, when the leader in the boys' and girls' club work weighed them. Four were sold in the fall for $50 apiece, one was fattened, killed and sold for $34, and 4 sow pigs which are being kept are worth at least $200.

All the care of the pigs has been taken by their boy owner. His father, in the meantime, has become interested and from now on father and son plan to make the raising of the big type Poland China pigs a main line of their farming.

A NEGRO BOY'S SUCCESS

Sherman Lynch, a negro boy of Edwards, Miss., joined the Farm Makers' Club, a club especially designed for negro boys, in the fall of 1916. As a result of his work last year he was able to deposit $100 in the Bank of Edwards, and with the money as an initial payment he has bought 30 acres of land from his father, bargaining for the tract for $400.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

AMERICAN DAIRY CATTLE TO GO TO DEVASTATED FRANCE

American dairy cattle are to follow American soldiers to France. One hundred and four Holstein-Friesian cows—42 pure breds and 62 grades—and 4 purebred bulls are to leave this country shortly on a specially-equipped transport. "Passports" have been issued to Havre, France, and from there the cattle will be sent to devastated districts where they will do their bit in bringing back health and happiness to the children of those regions. The cattle were purchased by the French High Commission, and at the commission's request dairy specialists of the United States Department of Agriculture assisted in selecting the animals.

Efforts were made to collect the animals from herds believed to be free from contagious disease, especially tuberculosis.

Of the entire number of cattle selected from 42 herds, a very low percentage reacted to the tuberculin test.

Special efforts were made to select only well-grown, large, strong animals, of good conformation, which showed evidences of becoming large milk producers. In age they varied from 2 to 4½ years, so that a long period of usefulness is ahead. All were due to freshen soon after arrival in France, so that milk will be available at once.

The animals were shipped from the assembling points by express to New York, where they are to be loaded on a specially-equipped transport. To insure proper care throughout the ocean voyage, a dairy expert of the United States Department of Agriculture will accompany the shipment.

Members of the French High Commission expressed themselves as being well pleased with the cattle selected. It is understood that these dairy cows are to help satisfy the urgent demand for milk from the war-stricken areas.

MARCH RECORD MONTH FOR APPROVAL OF ROAD WORK

During the month of March the Secretary of Agriculture approved 105 Federal-aid projects, involving the improvement of 1,148.93 miles of road, at a total estimated cost of $14,525,667.38, and on which Federal aid in the amount of $5,481,665.30 was requested. This represents the largest total estimated cost and the greatest amount of Federal aid requested for projects approved during any month since the passage of the Federal-aid road act.

During the month agreements were executed by the secretary and State highway departments to cover 41 projects, involving 290.34 miles of road, at a total estimated cost of $3,536,053.31, and on which $1,472,119.46 Federal aid was requested and set aside in the Treasury. Agreements for 37 other projects were placed in process of execution.

Up to and including March 31, a total of 963 projects had been approved, involving 9,962.67 miles, a total estimated cost of $77,850,935.84, and a total of $29,460,482.68 Federal aid; and a total of 484 project agreements had been executed, involving 4,106.7 miles of road, a total estimated cost of $34,335,851, and a total of $13,391,462.69 Federal aid.

SHOWS DANGEROUS CHARACTER OF FOOT-AND-MOUTH DISEASE

A recent outbreak of foot-and-mouth disease in England, now believed to be confined to the immediate neighborhood, is cited by officials of the Bureau of Animal Industry, United States Department of Agriculture, as an illustration of the virulency of the malady and how the most aggressive steps toward its control are necessary. The experience in England is a reminder of similar outbreaks in the United States. This country is now free from the disease, but all persons are urged to be eternally on guard and ready to report any suspicious cases to Government officials.

Four days after the disease was reported on a farm adjoining a repatriation camp at Littlethorpe, England, to which the farmer was daily selling milk, the malady had spread to two adjoining farms, and in a few more days had appeared in 17 places in the neighborhood. The infection was carried by visitors, by butchers who slaughtered the diseased and exposed cattle, and in one instance by a veterinarian whose clients owned infected cattle. The disease is thought to have been brought to the neighborhood by soldiers returning to the repatriation camp from France and Germany.

As soon as the disease was confirmed on January 9 by the Board of Agriculture of Great Britain, an area of 30 miles surrounding the infected district was quarantined, and no animals or straw, fodder, hay, manure, or similar products were allowed to move in or out of the quarantined territory.

The American consul general at Genoa, Italy, recently telegraphed a report of a serious outbreak of foot-and-mouth disease in that country, centering in the departments of Lombardy, Emilia, Piedmont, and Naples. The Italian Ministry of Agriculture was reported to be fighting hard against spread of the infection.

USE OF THOROUGH METHODS PREVENTS MOTTLED BUTTER

Mottled butter is frequently found on the market at this time of the year, and, even though it may be of very good flavor, it is strongly discriminated against by the purchaser. As this defect is one of workmanship, it can be overcome by the application of proper methods on the part of the buttermaker, according to dairy specialists of the United States Department of Agriculture.

Mottles are caused primarily by an uneven distribution of salt in the butter. This may be produced by insufficient working of the butter or by churning, washing, and working it at a very low temperature, or by washing or working it at a temperature several degrees higher or lower than the churning temperature.

When the quantity of butter made in one churning is much less than usual it is necessary to work it a greater number of revolutions of the churn than usual in order to produce the same results on the butter.

Extremely low temperatures of churning, washing, and working should be avoided, because they produce so firm a butter that it is only with great difficulty that the salt can be worked uniformly into it. High temperatures of churning, washing, and working must also be avoided to prevent an abnormal loss of fat in the buttermilk and also the making of a greasy, leaky butter.

Great variations in temperature during the manufacturing process should always be avoided. Under normal conditions the temperature of the wash water should be the same as, or within 2° of that of the buttermilk.

CAN NOT TRUST TO FOREIGN NURSERY STOCK INSPECTION

Department Tells Danger That Requires New Plant Quarantine

Many Dangerous Insects Brought into this Country from Abroad; American Plant Life Must Be Protected

The main arguments of objectors to plant quarantine No. 37, which will greatly restrict the entry of nursery stock and other plants and seeds, beginning June 1, 1919, are that either no pests are brought in on such imported stock or that thorough inspection abroad would eliminate any undesirable insects. There is no question but that the chief exporting foreign Governments have given to their nursery stock the best inspection which human skill and science can afford. Failures, says the United States Department of Agriculture, are due to the human equation and to conditions not subject to change, which make inspection and certification insufficient safeguards.

The inadequacy of such inspection since 1912, when it became operative, is shown by the findings resulting from reinspection of imported material at destination in this country. Data gathered by the United States Department of Agriculture show that there have been received from Holland 1,051 infested shipments, involving 148 kinds of insect pests; from Belgium, 1,306 infested shipments, involving 64 kinds of insects; from France, 347 infested shipments, involving 89 kinds of insects; from England, 154 infested shipments, involving 62 kinds of insects; from Japan, 291 infested shipments, involving 108 kinds of insects; from Germany, 12 infested shipments, involving 15 kinds of insect pests. Many of these intercepted insects are not known to be established anywhere in this country and numbers of them, if established, would undoubtedly become important farm, garden, or forest pests.

Danger Illustrated

Typical of the insects thus imported, some of which have come in on more than 1,000 shipments, are the records in relation to gipsy and brown-tail moths.

Under the system of inspection which has been established in the principal exporting countries there is little excuse for the passing and certification of stock infested with the egg masses of the gipsy moth or with the large and rather conspicuous leafy winter nests of the larvæ of the brown-tail moth. In point of fact, however, during the period in which the highest possible grade of inspection has been enforced, no less than 52 different shipments of plants from foreign countries have been found to be infested with egg masses of the gipsy moth or larval nests of the brown-tail moth. Three of these were from Japan and the others were from France, Holland, or Belgium.

Unfortunately, these records do not necessarily comprise the total entry of these two pests. They represent merely the instances of infestation discovered by reinspection on this side. Under the law the inspection of imported nursery stock in this country is left to the inspectors of the States, and the finding of infestation is therefore entirely dependent on the efficiency of State inspection. In many States this inspection is of a high order, and probably most, if not all, instances of infestation are found. In other States the inspection service is inadequately provided for and insufficient, and in a few States the service has little support and little, if any, efficiency. There is, therefore, the possibility that one or both of these pests have already gained foothold at one point or another in the United States and have not yet been discovered and reported. In this connection, it should be remembered that the gipsy moth was 20 years in Massachusetts before it was known, and this in the face of the fact that the infestation started in a thickly populated suburb of Boston.

That foreign inspection gives no real security is sufficiently shown in this record relating to two insects for which there is little, if any, excuse for overlooking.

Warn of Loss and Suffering

The establishment of these two insects in different parts of the United States would soon lead to their general spread throughout the country. What this would mean in cost and damage and also in human suffering can hardly be estimated. Only a portion of the New England States is now invaded by these insects, and yet the expenditure in clean-up and control work alone amounts to more than a million dollars a year by the States concerned, in addition to an aiding Federal appropriation of upward of $300,000 annually.

An important consideration in relation to the brown-tail moth is that in addition to the actual damage to deciduous forests, orchard and ornamental plantings, the larval hairs which are shed and fill the air at the time of the transformation of the insect to the chrysalis stage have an intensely irritating or nettling character, which causes a great deal of inflammation to the exposed parts of the human skin, such as the neck, face, and hands, and this irritation, in one or two known instances, and perhaps in others, has been the cause of death by affecting the lungs and leading to fatal cases of tuberculosis. Should the brown-tail moth reach the South and Southwest this irritation to human beings would doubtless be increased by reason of greater warmth and by the moisture of the skin and consequent greater likelihood of adherence of the larval hairs.

Ships' Ballast Not Important Source of Enemies to Plants

Objectors to the plant quarantine have insisted that there is as much danger of the introduction of insect pests in the earth used as ballast by ships returning from Europe as in the earth around foreign plants imported in balls, pots, or tubs. The earth around balled, potted, or tubbed plants can not be disinfected or cleaned and involves a large and known risk. In view of the argument that earth ballast is equally dangerous, the Federal Horticultural Board of the United States Department of Agriculture during the past two months has undertaken a thorough investigation of such ships' ballast.

This investigation has had special relation to the ports of New York and Boston, but is being extended to cover New Orleans, San Francisco, and other principal ports of the United States. The war conditions have evidently very much increased the amount of ballast thus brought to the ports of Boston and New York, for the reason that during the war transports carrying troops to France returned, for the most part, in ballast. The material employed for such ballast, however, would seem to involve very little risk of being the means of the introduction of dangerous plant enemies, according to statements made by the investigators of the Department of Agriculture. The bulk of it consists of sand, gravel, broken rock, and even ashes.

No Cultivated Soil Used

Soil is occasionally employed, but in the main this soil seems to have been derived from river banks or from excavations for construction purposes (cellar soil); in other words, such primeval soil as has had probably little or no touch with cultivated land. It is not at all probable that valuable garden or field soil would be secured and used for ballast purposes. The sand and gravel is as a rule sold for building or other construction purposes, and the broken rock and soil have been used to some extent

for filling in, and that brought in on Government vessels largely for fills in connection with Government constructions on the water front. Some of this ballast has been towed to sea and dumped along with city waste.

Little Danger in Ballast

It is perfectly apparent that there is very little danger from such material, and it can not be considered in the same sense at all as the highly cultivated soil coming with plants grown in greenhouses or in gardens or fields, and should any insect life get into such ballast material it would be accidental and exceptional. This investigation, however, will be continued to determine whether there is any danger in connection with such ballast which should be guarded against. Undoubtedly the amount of ballast brought to American ports will greatly diminish when normal commercial conditions are fully resumed.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for laboratory aid, for both men and women, on May 7, June 4, and July 9, 1919. Vacancies in the Department of Agriculture, at $840 to $1,240 a year, will be filled from this examination. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for United States game warden, for men only, on May 7, 1919. Vacancies in the Bureau of Biological Survey, Department of Agriculture, for duty in the field, at $1,500 a year, will be filled from this examination. Applicants should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Although olive oil as a food and medicinal oil can be replaced very largely by other vegetable oils, there are one or two technical uses, wool spinning, for instance, for which no entirely satisfactory substitute has yet been found.

Even a well-grown crop of sweet potatoes may lose much market value by lack of proper care in digging, handling, and preparation for market. Precaution must be observed when digging and handling to prevent a well-grown product from becoming unsightly through the presence of cuts, bruises, and other defects.

Great Northern White Bean Grows Early; an Heirloom from Indian Agriculture

American agriculture inherited a legacy from the Mandan Indians of the Northwest which indicates the redskins' real ability to till the soil and to till it well. The Great Northern white bean, acclimated, developed, and grown extensively in Montana as well as North and South Dakota, is the gift of the Indian warrior to his pale-face brother. It is the only variety of bean which will mature as far north as the regions in which it has been grown, its extreme earliness qualifying it for harvest in plenty of time before Jack Frost goes on the warpath.

Helped Out in War

The Great Northern bean came into the limelight during 1918 as a valuable food product during the war emergency when 40 carloads were marketed at Billings, Mont. Previously the United States Department of Agriculture had experimented in various latitudes with this leguminous crop and had ascertained that the variety was adapted only to northern conditions, as it would not make a profitable yield as far south as Washington, D. C., although at a high altitude in the region of Rocky Ford, Colo., the new bean made good. Specialists of the department suggest the inadvisability of attempting to grow this bean in the bean belts of either New York or Michigan. That this bean is white helps much in making it salable, but its size and shape vary sufficiently from the customary white sorts to require some little work in creating a healthy demand.

During the early eighties a Bismarck, N. Dak., seedsman secured samples of the Great Northern bean from the Indians of the Fort Berthold Reservation, but it was not until 1895 that he listed it for sale in his annual seed catalogue. Since that time this variety has been grown on an extensive scale as a home bean throughout Montana and the Dakotas. It is cultivated in the same way as beans are cultivated in Michigan and California. On the average it yields about 15 bushels to the acre, although, under favorable conditions and when grown on a fertile soil, crop yields as high as 20 bushels have not been uncommon.

As a food crop of definite aboriginal origin this bean is of special interest, while its ability to grow under temperature conditions unfavorable to other beans qualifies it as a valuable food crop in territories where other beans usually are ravaged by Jack Frost. The department has arranged for the distribution of all the bean seed of this variety it has available during the coming season.

GRADING SYSTEM DECREASES BAD-EGG LOSSES IN KANSAS

That greater care in handling eggs is causing material decrease in the number of rotten eggs is indicated by egg-candling records from Kansas for the years 1916, 1917, and 1918. These reports, obtained by the Food Research Laboratory of the Bureau of Chemistry from Kansas shippers, show that in August, 1916, receipts at the packing house contained 11.7 per cent rotten eggs, while the average from June to October, inclusive, was 4.4 per cent. During August, 1917, the eggs as they reached the packing house contained 7.7 per cent "rots" with a June to October average of 2.8 per cent, while in August, 1918, rots decreased to 5 per cent and the June to October average was 2.4 per cent.

These figures are even more significant when considered from the viewpoint of temperature. The summer of 1916 was rather warm. The Weather Bureau figures indicate that June, July, and August had an excess of temperature of about 1.6° F. The same months in 1917 gave a subnormal average of 0.4° F., which, of course, helped to keep the eggs good. However, the summer of 1918 was hot. The average was 4.6° F. above usual summers. In spite of the unfavorable weather conditions the rotten eggs in August, which was furthest from the average, dropped 2.6 per cent as compared with the relatively cool August of 1917.

The shippers whose egg receipts are included in the above statement have cooperated with the United States Department of Agriculture in advocating and practicing the buying of eggs the year around on a graded basis. Therefore they are getting higher quality eggs than the shippers who buy "case count." If the total number of eggs which rotted in Kansas during the three years cited could be obtained, the average would be higher than the figures given here, it is believed.

It is shown, also, that nearly 1 per cent of rotten eggs were found during April and May, when all eggs are supposed to be so good that there is no need for shippers to candle, not even for storage purposes. However, three rotten eggs in each case of storage packed eggs means that somebody pays on a carload of 400 cases for the transportation and storage of 100 dozen useless eggs.

Would Import Tropical Parasites To Drive Out Sugar-Cane Moth Borer

Importation of parasites from Cuba and other tropical countries offers the most hopeful method of ridding the sugar-cane growing regions of the United States of the sugar-cane moth borer, or at least of keeping it under control and reducing the injury from it, in the opinion of experts of the United States Department of Agriculture. A department bulletin, No. 746, "The Sugar-Cane Moth Borer," written by T. E. Holloway and U. C. Loftin, entomological assistants in southern field crop insect investigations, with technical descriptions by Carl Heinrich, has just been issued. The subject is treated exhaustively. Results of long-continued and careful experiments are given. While a number of means are suggested for curtailing the injury from the moth borer, the introduction of natural enemies appears to be the one holding out the most hope.

Damage in Three Regions

The sugar-cane moth borer in the United States is confined to three isolated regions, closely conforming to the areas of large commercial plantings of sugar cane—southern Louisiana, southern Florida, and the extreme southern tip of Texas. Throughout those regions it reduces the yield of sugar in varying measure, averaging, perhaps, about 20 per cent. The chief damage results from the larva tunneling lengthwise through the mature cane, not killing it, but injuring it severely, retarding its growth, and subjecting it to the fungous disease known as red rot. A slighter measure of damage follows larval attacks upon very young plants, resulting in what is known as dead hearts.

The moth borer feeds on a number of plants other than sugar cane, rendering usual methods of control extraordinarily difficult and, for the most part, not efficacious. Experiments in poisoning, attraction to light traps, and the like have not proved effective. Five definite recommendations are made, however, other than the introduction of parasites.

How to Fight Pests

Scraps of cane left about factories and derricks after the grinding season should be destroyed, preferably by burning, and cars in which cane is shipped should be kept free of such scraps. Seed cane should be planted in the fall and kept as deeply covered as practicable. Cane for shipment beyond the infested area should be selected so as to obtain it free from borers or, if this is impracticable, it should be soaked for at least an hour in Bordeaux mixture or a solution of nicotine sulphate previous to shipment. The "trash," "leaves," or "shucks" left on the fields after cutting should not be burned, but should be lightly covered with earth in the fall and plowed out in the spring. The cutting out of "dead hearts" and dead plants is said to be theoretically sound practice and, where an abundance of cheap labor is obtainable, might be recommended.

It is pointed out that the introduction of parasites has proved effective in Hawaii, and that experiments in the United States have given promislng results. If the introduction of beneficial parasites can be undertaken, the experts say, it should be done on a large scale, and it would be advisable to station two men in Cuba to collect the parasites, and one in Louisiana to receive and ultimately to release them on the plantations.

Tells Ways of Combating Destructive Tobacco Beetle

The tobacco beetle, known also as the "cigarette beetle" and by a number of other names, which is common and very destructive wherever large quantities of leaf or manufactured tobacco are handled or stored, has been made the subject of study by specialists of the United States Department of Agriculture to determine methods of controlling it. A report of the study has been published in Bulletin 737 of the department, which also contains a complete description of the insect, its life history, and habits.

The principal sources of infestation of the finished products in tobacco factories, the bulletin says, are: Infested leaf tobacco brought into the factory; tobacco warehouses, where beetles are present in large numbers close to the factory; infested tobacco, refuse material, cigars, and manufactured tobacco which has accumulated and which offers a breeding place for the pest and from which it spreads quickly to all parts of the factory.

The more important means of controlling the beetle, as given in the bulletin, are:

Scrupulous cleanliness in the factory, wholesale or retail establishment, including the prompt destruction or treatment of all refuse material, damaged stock, etc.; in factories, screening or otherwise protecting the finished product from infestation; constructing or refitting packing or storage rooms, especially in warm localities, so that they can be quickly and easily cleaned, and with a view to excluding all beetles which may be present in other parts of the factory. Freezing, high temperatures or steam, fumigation with carbon disulphid or hydrocyanic-acid gas, sterilization of the tobacco with X-rays, and trapping or otherwise destroying the insects by mechanical means are recommended.

DEPARTMENT URGES FARMERS TO BUY ONLY LABELED SEEDS

(*Continued from page 1.*)

ply with this suggestion, but an investigation by the United States Department of Agriculture shows that it was not generally lived up to. This failure on the part of the seed trade has been called to their attention and the greater number of seedsmen have again announced that they will fully label all agricultural seeds they sell.

Farmers Should Insist

Practically all the large seed houses now have facilities for testing seeds and know the quality of each lot they buy and sell. The seed trade has the information which the farmer needs, and the farmer should insist on being given this information when he buys seeds. Almost invariably the seedsmen make their largest profit on the lowest grade seed they sell, and the farmer who buys such low-grade seed gets correspondingly poor results in the field. Few farmers are willing to buy low-grade seed containing large proportions of chaff, dirt, weed seeds, and dead seeds if it is truthfully labeled showing how poor it is.

The farmer's protection lies in buying labeled seeds.

The tomato is closely related to the potato, and while the actual food value of the tomato is not so great as that of the potato, it has certain qualities that make it one of the most desirable of our garden crops.

The bleaching of cottonseed oil with fuller's earth causes a loss, and probably does not materially improve the quality of the oil. If the trade did not demand a white cooking compound, it would be possible to dispense with this operation.

A good way to handle the shelves in the kitchen and pantry is to paint or enamel them. Painted shelves can be wiped with a damp cloth every day if need be. Shelves covered with paper are less apt to be cleaned as frequently as is needed, and are always a bid for dust and vermin.

Cooperative Motor Truck Route Proves Its Cash Value to Farmers in Maryland

"What could we do when railroad service was unsatisfactory, distance to market was excessive for horse travel, and local charges for transportation by motor truck were unreasonably high, but in self-defense organize a cooperative association and handle our own hauling," replied the secretary of the Harford County, Md., rural motor truck route to the query of why the association was formed.

"We incorporated our association and capitalized it for $5,000, selling 200 shares of stock which had a par value of $25 a share," continued this official. "Each member is obliged to own at least one share of stock, but is limited in his stock purchase to 20 shares. We purchased a 4-ton truck which operated between Bel Air and Churchville, Md., and Baltimore, for hauling milk, cream, and other farm produce to the city, and feedstuffs, seeds, salt, fertilizer, machinery, and supplies for the rural merchants on the back trip.

"A Bel Air business man kindly furnished office room and clerical assistance for the association. As soon as the project was well under way a central receiving station was established in Baltimore for the reception and centralization of the supplies to be returned to the country. No attempt has been made by the association to earn dividends. Rates are made with a view to meeting the expenses, providing for depreciation, and accumulating a surplus to be used as working capital. The rate on goods classified as first class and inclusive of apples, axle grease, baskets, butter, beans, buckets, buckwheat, barley, empty barrels, blankets, blacking, canned goods, coffee, cabbages, cantaloupes, fish, groceries, hardware, dressed hogs, harness, hay, iron, molasses, machinery under 400 pounds, notions, oils, onions, oranges, potatoes, dressed poultry, stoves, auto tires, vegetables, and automobile, auto truck, buggy, and wagon wheels is 15 cents a hundredweight, while second-class articles, such as axes, are hauled for 12 cents a hundred pounds. Calves are transported to market for 50 cents apiece, while live cattle and hogs are handled at 50 cents a hundredweight. It costs 25 cents a coop to ship chickens, while cream and milk are hauled at 2½ cents a gallon, the empty cans being returned. Wagons (knocked down) are hauled according to size: One-horse wagons, $2; two-horse, $3; three-horse, $4; and four-horse, $5."

The association pays its members for all goods lost or destroyed. Where the shipper desires insurance against loss the charge for hauling cream is 4 cents a gallon, while, if the farmer is willing to assume the risk, the same charge is made for hauling cream as for milk. In case of loss all cream shipments made at the milk rate are compensated for on a milk basis. If the shipper pays the 4-cent rate, all losses are settled at the market price of cream. Thus far damages have been paid out of operating revenues, although it is believed a safer policy would be to create a special reserve or claim fund to provide for such expenses. Another good plan is to take out sufficient insurance to cover both the trucks and goods in transit in case of loss.

The members of the association who live along the route have constructed loading platforms at their front gates. They are of the same height as the floor of the truck, thus facilitating the transfer of freight from the farm platform to the motor vehicle. At present, due to the expansion of the business, and especially to the hauling for country stores, the Harford association operates one 4-ton and one 5-ton truck, which make daily trips to Baltimore, the distance traveled being about 60 miles.

Both Buys and Sells for Members

This Maryland cooperative club is of valuable assistance to its members in both the purchase and sale of produce and supplies. Members notify the secretary of their needs, and as soon as a sufficient number of orders is on hand he buys at wholesale in large amounts in Baltimore, thereby markedly reducing the cost of the articles to the farmers as well as minimizing trouble in purchasing and hauling goods for these consumers. In case the individual farmer wishes to make his own purchase he does so and has the supplies delivered at the receiving station, so that they may be hauled by truck to his farm. The motor service is of incalculable value to the members during periods of rush work when machines break and they are able to telephone to the city for repairs and have them delivered by the truck, perhaps the same afternoon that the accident occurred.

The association also aids its members in selling produce. One farmer had 1,500 bushels of wheat which he desired to market, but as the local miller did not want to buy, and because the farmer was too busy with other work to haul the wheat to the railroad, he turned the marketing over to the secretary of the association, who sold the wheat in Baltimore and delivered it there in the club trucks. Milk and cream are hauled daily to the city and delivered at six of the metropolitan dairies, while poultry products and other farm produce are marketed with commission dealers and other wholesale firms. Because the eggs were strictly fresh, the association marketed them for its members at a premium of 3 to 5 cents a dozen over the city quotations.

Obtaining Good Operators

Competent, reliable, and honest operators who will make trips in a minimum of time and handle their cars so as to realize the maximum efficiency from their operation are essential where the rural truck route is to be successful. The Harford plan is to have both the driver and his helper qualified to operate the machine, so that the helper can replace the drivers when necessary. This association also keeps several emergency drivers and helpers in reserve, so that in case of sickness or accident to the regular crews the operation of the trucks will not cease. It provides a furnished house at Churchville for the accommodation of these employees, and also suggests the advisability of rewarding faithful operators with a cash bonus for honest and faithful services. The Harford association is completing a garage and repair shop at Churchville, which also will be used as a receiving station for country freight of the members who do not live along the regular route.

Project Pleases Farmers

The Harford Cooperative Association has fulfilled the purposes for which it was organized. It provides satisfactory transportation services at lower rates than the local railroad customarily charges, while the convenience of the farm-to-farm pick-up service is very pleasing to the farmers. For the hauling of milk and cream, which constitutes the majority of the business of the Harford association, the truck system provides superior facilities to those furnished by rail, especially in that it minimizes the damages and loss of milk cans which, in the instance of railroad transportation, usually represents a heavy outlay.

According to the Maryland law, the cooperative association does not need to pay the heavy license fee to which private individuals who make a business of public hauling are subject. The motor route also releases for other more profitable farm work the horses and men formerly

engaged in hauling produce either to the railroad or cross-country to the city market.

Field for Truck Routes

According to the experience of the Harford County Cooperative Association, the rural motor route supplies a solution of transportation and marketing problems for many farming sections which are located not more than 30 to 40 miles from a desirable city market and which are favored with permanent, hard roads. Farmers who organize such associations are advised to study carefully their local conditions, so as to be sure that there is enough year-round hauling to justify the establishment of a truck route. They should raise sufficient funds at the outset, so that they can pay cash for a truck. It is cheaper to operate a 4 or 5 ton truck than it is to run one of 2-ton capacity, provided there is sufficient tonnage available. As a rule, the new club will not go wrong if it begins business with a larger truck than it really needs, as the surplus space will allow for the expansion and development of the business which is sure to follow in well-selected territory.

Trucks of only standard make should be used, as under such conditions repairs will be easy to get and the overhauling of the truck will not be outside the ability of the average mechanic. In purchasing the truck, special attention should be paid to the cost of operation and records of performance as well as to the price of the machine.

Much information in regard to the operation of this rural truck association is now available in Farmers' Bulletin 1032, which has been published recently by the United States Department of Agriculture.

USE FOR PAPER WASTE PRODUCT

Waste hemlock bark, a material remaining after paper manufacturing and that has been of little or no value, can be put to use in tanning, according to officials of the Forest Service. The feasibility of using it for such a purpose was further demonstrated in recent tests at the Forest Service laboratory at Madison, Wis. No great technical difficulty stands in the way of using this paper-mill product for such purposes, and the product is satisfactory from the tanners' standpoint, the tests show.

A very interesting method for converting liquid oils into solid fats which has recently come into rather general use is known as hydrogenation. In this hardening process reduced nickel is employed to effect the combination of hydrogen gas and the liquid glycerids.

Poor Chimneys Cause Many Rural Fires; Care Needed in Building New Homes

A summary of the various causes of fire, as given by State fire marshals of different States, shows that fire attributable to chimneys annually amount to from 10 to 26 per cent of the total number, while in winter the percentage has reached as high as 50. This is significant when it is realized that most of these fires result from carelessness and could be avoided by proper attention.

In cities and towns with proper fire protection many fires are arrested without serious loss. It is evident, say specialists of the United States Department of Agriculture, that in rural districts, where there are no organized fire-fighting agencies, and where a fire usually results in a total loss, builders should give more attention to making the construction of all new chimneys as nearly fire-proof as possible.

With the establishment of peace, home building, which during the war was practically at a standstill, probably will receive a considerable stimulus. With the increased volume of work, building will be speeded up to the limit, and the fact that carelessness is bound to creep in should not be forgotten. This should be especially guarded against in fire hazards in chimney construction.

Danger in Many Chimneys

It is well known that the ordinary brick-and-mortar chimney as usually constructed is a source of danger. The constant heat from fire in time causes the mortar to become dry, so that it falls out of place, leaving holes in the chimney. Such a condition usually goes unnoticed and is a constant source of danger from fire.

In constructing chimneys in buildings made of combustible material, the chimney should be built straight up from the ground and not placed on a bracket, as is often the case, and should extend 2 feet or more above the peak when the chimney is in the center of the roof and 3 feet or more above the surface when on a flat or slanting roof. For proper draft, the minimum-sized opening for the flue should not be less than 64 square inches, while the walls should be at least 8 inches thick. At the base of each flue a clean-out door should be provided, if possible. Whatever the material used in construction, it should be of good quality and laid in cement. Flue holes should never be filled with any inflammable material, but should be covered over in a secure manner with a metal flue stop.

The joists used to support the floors through which the chimney passes should not have their ends supported in the brick, as the chimney may settle, leaving at these points cracks through which fire may creep to the joists; furthermore, no other woodwork should come in contact with the chimney.

Good Flue Linings Needed

To obviate the fire hazard in brick chimneys it is suggested that some good flue lining be used in their construction. This lining may be either fire clay or terra-cotta tile, and no difficulty will be experienced in its use. If fire clay is used instead of terra-cotta tile, the results will be similar if the size of the flue is not thereby cut down. The lining serves as a fire preventive, and in the case of terra-cotta tile gives a flue of uniform dimensions. The ordinary brick chimney will not do this. With lining the flue presents a smooth surface, which leaves no place for soot to gather, thus eliminating to a great extent the possibility of chimney fires. The cost of such a lining for an ordinary two-story residence would be nominal, and the lining should prove a cheap and effective means of fire protection.

It is possible to use fire brick in place of the fire clay or terra-cotta tile, with the same result, but at greater cost. Fire brick are almost universally used in the construction of fireplaces for lining the fireback, sides, throat, and walls of the ash pit.

Where the home is already equipped with the ordinary unlined brick chimney a close inspection should be given at short intervals to insure safety. If any breaks or cracks appear, they should be immediately repaired. It would also be well occasionally to clean the chimney, thus removing soot. This may be done with a wire or rope to which is fastened any object suitable for the purpose. A one-quarter-inch rope and a pair of old automobile tire chains used for this purpose did the work satisfactorily.

The poultry house should be built as low as possible without danger of the attendants bumping their heads against the ceiling. A low house is more easily warmed than a high one.

In the location of the poultry house, if it is impracticable to select a soil that is naturally dry it should be made dry by thorough underdrainage.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Weekly Produce Reports for Farmers

Weekly reports summarizing market conditions for farmers near large cities are being issued by the city market reporting service of the Bureau of Markets from Washington and several other cities. These reports are in addition to the regular daily reports on fruits and vegetables. It is the aim to have these new reports include all products in which local farmers may be interested, such as fruits, vegetables, butter, eggs, cheese, poultry, hay, calves, and other farm products. Country editions of city newspapers are making these reports one of the features for the "farmers' page" of their Sunday issues.

Helped the Mess Sergeant

Garland County, Ark., has a home-demonstration agent. It also has an Army and Navy hospital with a mess sergeant who believes in "taking thought for the morrow." When fruit and vegetables became a glut on the market in that county last summer the sergeant couldn't put out of his mind the thought of how good some of them canned would taste to his boys in the winter. Finally he went to the home-demonstration agent of the county for help. The future needs of the sick boys appealed to the agent, and all through the summer, during her spare time, she helped the sergeant can. The total was amazing. The shelves of the pantry in the hospital creaked under 9,510 pounds of canned delicacies. In the jars were peas, beans, corn, beets, tomatoes, beet tops, sauerkraut, Indian relish, pickled pears, peaches, peach butter, and strawberries. Ten-pound cans were used for containers. A hot-water canner which would hold twelve 10-pound cans was put on top of a gas stove, and with this the 4½ tons of fruit and vegetables were "put up."

Good Winter for Western Lambs

As a result of favorable winter conditions in many sections of the West the spring lamb crop is unusually high, according to reports by local representatives of the Bureau of Markets, United States Department of Agriculture. In Idaho, for example, the lambing season for ewes wintered in sheds was practically over by March 15, and it resulted in approximately a 100 per cent crop. The marketward movement of lambs is expected to get under headway by June 15, at least two or three weeks earlier than in previous years, and to attain good volume by July. If these lambs mature according to present expectations a larger number will be marketed than in many years. Idaho and some other western States had little snow the past winter prior to February 1, but on that date the mountainous sections were well covered, giving promise of enough moisture to insure a good early summer range.

Virgin Peanut Oil Available

Virgin peanut oil of domestic manufacture is on the market for the first time in considerable quantities. It is one of the most delicious of oils, especially fine in flavor and, in the opinion of many consumers, equal in every way to the best virgin olive oil. The bulk of the peanut oil that has been available was hot-pressed oil. The virgin oil is cold-pressed and no refining is required. The United States Department of Agriculture during the past two years has stimulated the production of virgin peanut oil, and specialists of the department have cooperated closely with producers.

The virgin peanut oil, home-made from a home product, will come in competition with foreign oils. About 98 per cent of the olive oil consumed in the United States is imported. Olives are grown in California, but the bulk of the product goes to meet demands for olives in forms other than oil. Department experts believe that virgin peanut oil, once the American people become familiar with it, will be as popular as any table oil thus far generally used.

No Halt in Sheep Raising

Sheep raising was increased as a war emergency to supply much needed meat and wool, and now that the flocks have been established will continue to increase, although the emergency has passed, say sheep-extension men of the United States Department of Agriculture. In Tennessee and Kentucky, for example, the lamb crop shows an increase of from 15 to 25 per cent over last year's crop, chiefly because of enlarged breeding operations, although favorable climatic conditions during the past winter were partly responsible. Semiofficial estimates place the number of breeding ewes sent out from the Louisville market last summer and fall at 40,000 head, or about 12,000 more than the year previous. The output from Nashville also was larger last year, and many more ewe lambs were retained on farms of Kentucky and Tennessee for breeding purposes than in several previous years combined.

Children Work for School Equipment

In Waldo, Columbia County, Ark., the home-demonstration agent gave a talk to the school children in which she explained the value of domestic science laboratory work in school. Twenty-five of the children who heard her were so anxious that their school should have kitchen equipment, which might be used for hot lunches and for the teaching of domestic science, that they agreed to raise money to furnish a laboratory. They divided the janitor work of the school among themselves and used the money paid them for equipment. The kitchen in the Waldo School is now well furnished and the benefits from it have been even more satisfactory than the children anticipated. A strong domestic-science course has since been added to the school.

Window Displays Aid "More Poultry"

Storekeepers in a number of cities and towns established at least two new records as poultry raisers last spring. They set a new mark in intensive poultry keeping and in raising chickens on high-priced land by putting a pen of fowls with a suitable house for them in their show windows. Such displays no doubt attracted interest to the stores, but the real motive for making them was to assist in the campaign for back-yard poultry keeping being conducted throughout the country by the United States Department of Agriculture. While it is impossible to give definite figures as to the extent to which back-yard poultry keeping has been taken up in cities, poultry specialists who directed the campaign say there is evidence that there has been a very considerable increase in this direction. Reports from representatives state that in many towns and cities from coast to coast more people are keeping poultry than ever before. They report also that many persons who began to keep poultry largely from patriotic motives have been so successful and are so pleased with their results that they intend to continue

to keep their flocks, even though they feel that the need from a patriotic point of view is past.

Walk 35 Miles to Short Course

Three boys last summer walked 35 miles to take the train to attend the short course at the Russellville Agricultural School in Pope County, Ark. The course given there was popular with boys and girls, and the results were satisfactory to the teachers of various phases of agriculture and domestic science. Those enrolled were members of the boys' and girls' clubs organized by the United States Department of Agriculture and the State college. Many of the students at Russellville made unusual efforts to attend. Some walked from 10 to 35 miles, and one man brought his children 45 miles in a wagon. Altogether 369 boys and girls took advantage of this opportunity to learn more of the best ways of doing farm and home work. At a short course at the Jonesboro (Ark.) Agricultural School 500 boys and girls were enrolled, while 265 attended a course offered at Magnolia. In the coming summer more of these short courses will be offered to the ambitious young people of Arkansas.

Dig the Barberry; "Bust the Rust"

The black-stem rust of wheat and other grains grows on the leaves of the common barberry bush in early spring and summer. From the barberry bush the rust spreads to grains and grasses, especially wheat. When conditions are favorable the rust spreads like wildfire, and may cause damage to the extent of hundreds of millions of dollars.

Remember 1904 and 1916, suggests the United States Department of Agriculture. Dig up the bush now, before it does its deadly work. Dig out all the main roots. If pieces are left in the ground, sprouts will grow from them. These sprouts grow rapidly and rust easily, and more trouble may be made before you know they are there.

Chart Shows Food Value of Milk

One million small charts showing graphically the food value of milk have been sent by the Dairy Division of the United States Department of Agriculture to city milk distributors, creameries, cheese factories, and other dairy interests, which are distributing them to consumers. The chart compares the solids of milk with the solids in edible portions of a number of vegetables, pineapples, and oysters. Milk, according to the chart, averages 13 per cent of solids. Onions and beets have a little less than this percentage, while tomatoes, asparagus, celery, lettuce, and cucumbers have less than half the solids that are contained in milk. The wide distribution that is being given this chart, the dairy specialists say, should stimulate the use of milk in the home.

A Woman's Food-Producing Record

Many women, encouraged by the United States Department of Agriculture and the State colleges, made notable records in food production and conservation last year, and much of America's total at the end of the year was due to their efforts. A member of the home club of Benton County, Ark., made an especially good record in producing and conserving food. During the summer of 1918 she canned 5,040 cans of vegetables, which she had raised in her garden, made and sold 665 pounds of gilt-edge butter, and raised and marketed $225 worth of poultry.

More American-Egyptian Cotton

An industry—conceived and developed by the United States Department of Agriculture—which has proved practical and profitable is the growing of American-Egyptian cotton in the Salt River Valley irrigation project in Arizona. The business was established in 1912, when a few hundred bales of American-Egyptian cotton were produced. In 1918 the Salt River Valley planted approximately 71,000 acres to American-Egyptian cotton, with a crop of about 35,000 bales and a gross value of about $300 a bale. On this basis the crop was worth more than $10,000,000. The present indications are that the plantings will be still larger this year. Several thousand acres on the Yuma project in southern California and Arizona and in the Imperial Valley of California are now devoted to this crop. In addition to the work of the Bureau of Plant Industry in introducing and acclimating this variety of cotton, the Bureau of Markets has established official grades and lengths for marketing.

Interest in Gardening Continues

The high cost of living received a body blow last year when approximately 30,000 war gardens were grown in Washington, D. C., and vicinity. These gardens were conducted under the direction of the Garden Committee of the Council of National Defense and the specialists from the United States Department of Agriculture. There were 31 organized garden clubs in all near the National Capital, the largest of these being the Potomac Garden Club, which cultivated 128 lots, each 40 by 100 feet in size, in East Potomac Park. These gardens were very successful and added materially to the food supply of Washington.

This year the Potomac Garden Club has been greatly enlarged and 288 plots are being assigned to individual gardeners in order that they may supply themselves with vegetables and keep up the fight against high prices. Many of last year's garden clubs are reorganizing and some new ones are being formed. Just recently a club was formed, known as the West Brookland Park Garden Club, with about 30 active members. The demand for garden plots is greater than ever before, and the prospects are that there will be not only more gardens but better gardens in Washington this year.

NEW GREEN BEAN FROM JAPAN SUCCESSFULLY GROWN IN U. S.

An American missionary in Japan, interested in the introduction of good crops from the Land of the Rising Sun into the domain of Uncle Sam, sent a sample of Hahto soy beans, which he had purchased at an agricultural fair, to the United States Department of Agriculture about three years ago. This bean has since been grown successfully at the Department's Arlington (Va.) experimental farm, and has been tested in other parts of the country. Although the Hahto bean, which produces excellent green vegetables similar to lima or butter beans, is preferably adapted for culture in the Southern States, the variety also produces profitable yields of green beans during favorable seasons in the corn belt.

The Hahto soy bean is a bush variety which grows high enough to produce abundant forage, yielding nearly as large hay crops as the Mammoth Yellow, and is believed to be superior in seed production to that variety. When the seeds are from three-fourths to full grown they make an excellent green vegetable. A number of residents of the District of Columbia and several States grew the bean in their gardens last summer and canned the product, which has been pronounced by epicureans to be at least the equal if not the superior of the ordinary butter or lima bean.

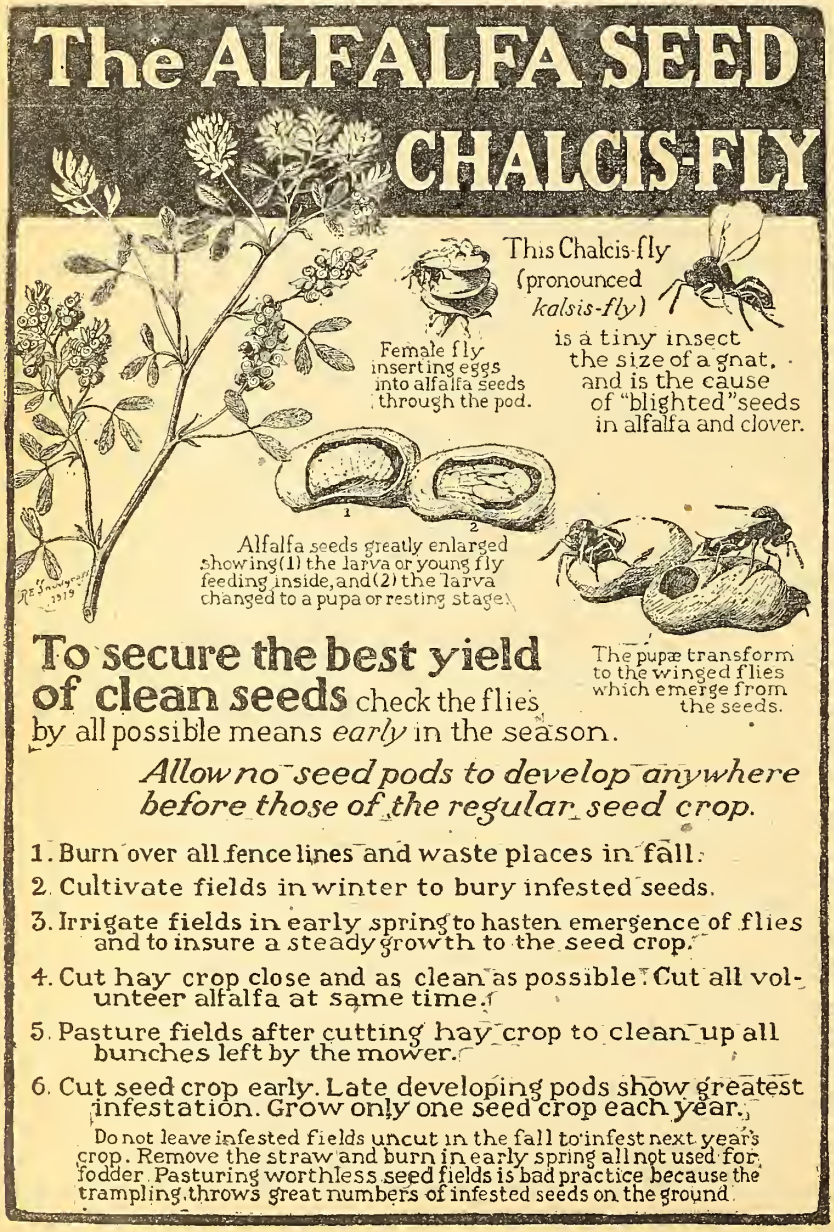
Dried Hahto beans cook up easier than any other variety of "soys" and have a more pleasant flavor than most of the other sorts which have been used in this way. A growing season of approximately 130 days is required to produce mature beans, while the green beans are ready for harvest at least two weeks earlier. During the current season a Michigan canning company is to test out the Hahto bean for commercial canning purposes. The department will not be able to comply with requests for seed, as arrangements have been made for the distribution of all the seed that is available among boys' and girls' garden clubs of the South, where the variety is best adapted.

Alfalfa Seed Chalcis Fly Dangerous to Crop; Control Measures Are Shown

The alfalfa-seed chalcis fly, an insect the size of a gnat, is the principal cause of blighted alfalfa seed. Its range covers practically the whole of the United States. While its ravages extend to clover and bur clover, the largest damage is done to alfalfa seed. Damage occurs wherever an alfalfa seed crop is grown, but is especially severe in California and the States on the Pacific slope of the Rocky Mountains. The fly deposits its eggs through the seed pod directly into the green seed, where the larva is hatched and grows to maturity. All changes, both larval and pupal, are effected inside the seed. The adult insect emerges through a hole cut at one end of the seed, leaving only a hollow shell.

The egg of the chalcis fly is so small as to be invisible to the naked eye. Even the presence of the living larva in the seed is hard to detect except by opening the seeds and examining them under a microscope. There is some modification, however, of the shape of the seed in which larvae are feeding. The color, also, is likely to be darker and the surface less glossy.

Control measures have been worked out by experts of the United States Department of Agriculture, the essentials of which are shown in the accompanying illustration. The basis of control work is to allow no seed pods to develop anywhere before those of the regular seed crop and to leave no infested pods in fields or around stacks in which the larva or pupa may overwinter.



FEEDING GRAIN TO CALVES; MIXTURES ARE RECOMMENDED

When the calf is in its second week it should begin to receive grain, and when one month old it should eat about half a pound a day. After this time the quantity of grain may be gradually increased, feeding all that the calf will eat until 3 pounds a day is reached, probably during the third month. Grain fed to supplement separated milk should never be mixed with the milk. It is questionable whether the preparation of grain in any way, such as soaking or boiling, is advisable under most circumstances.

Wheat bran is eaten readily by young calves. Corn has an excellent physiological effect and to a great extent may take the place of fat removed from skim or separated milk. Experiments tend to show that corn fed to calves should be cracked rather than finely ground. Ground oats are good in grain mixtures when available, but in many cases cost much more per unit of feed than corn and bran. The following grain mixtures are recommended by dairy specialists of the United States Department of Agriculture:

(1) Three parts cracked corn and one part wheat bran.

(2) Three parts cracked corn, one part wheat bran, and one part ground oats.

(3) Three parts cracked corn, one part wheat bran, one part ground oats, and one part linseed meal.

(4) Five parts cracked corn, one part wheat bran, one part ground oats, and one part blood meal.

(5) Oats, ground.

Clover hay, alfalfa hay, or the most palatable roughage available should be given the calf after the second week. Alfalfa is likely to cause scours, and should be fed sparingly at first and increased only after the calf gets accustomed to it. At first hay should be furnished only a handful at a time, and be placed so that it can not be soiled. For the first six months, at least, the calf should receive all the roughage of good quality that it will eat up clean. When the calf has access to good pasture during the first six months it need not receive other roughage. It is not advisable, however, to have the calf under 2 months of age on pasture in the early spring.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI APRIL 23, 1919 No. 38

FARMERS' HELP IS ESSENTIAL IN NATIONAL THRIFT CAMPAIGN

Agriculture Backbone of Nation, Treasury Representative Declares

Directors of Extension Asked to Explain Benefit to Any Man in Placing Money in Government Securities

The campaign for national thrift has no more important element to which to appeal than American farmers, and the extension organization of the United States Department of Agriculture and the cooperating State colleges is looked to for important aid in encouraging popular investment in Government securities. This was stated by William Mather Lewis, of the Savings Division, Treasury Department, in a recent address to directors of agricultural extension work.

"We are just beginning," said Mr. Lewis, "to grasp the stupendous cost of the world war—$197,000,000,000, or $180 for every minute since the birth of Christ down to the present moment. That is what was paid in money. And 9,000,000 lives of soldiers—to say nothing of millions of civilians—that was the cost in precious human lives.

"If the lessons taught by the war are not needed, if we do not perpetuate the victory by making the conditions of life vastly better than they could have been otherwise, then the great conflict was the most stupendous and useless tragedy the world has ever seen.

Thrift's Power Shown by War

"One of the greatest lessons taught by the war is the power of thrift. France survived the storm because for centuries her people have made the most of their resources and had laid aside a reserve force. Russia is in the throes of bloody revolution because her people had never been given the opportunity to save, to get ahead, to devolop independence and leadership. The United States was the deciding factor in the war, because our people, suddenly called to their senses, diverted their money and their foodstuffs and their materials from the channels of extravagance to the aid of our sorely tried allies.

"To make this great element of thrift an enduring national habit, the Treasury Department has created the Savings Division for the purpose of carrying to every citizen in our great Nation the message of wise spending, systematic saving, and intelligent investment. Thrift is a bulwark of national life—where the people have something at stake if the country is wrecked, if they have set aside some of the fruits of their toil; if they are bondholders in their government, they do not fall easy victims to the destructive plagues of Bolshevism and anarchy, which are sweeping over some parts of Europe. Thrift is a stabilizer of business. Periodically we have hard times; production exceeds consumption, mills close, and thousands are thrown out of employment. If the people are thriftless, the retailer is forced to ruin himself by extending unlimited credit, or to make the general situation more gloomy by closing his store. If, however, those thousands of unemployed have practiced thrift, have laid an intelligent amount aside for a rainy day, the stores do not close, the banks remain strong, and soon the factories are forced to open their doors to supply a steady demand.

Thrift Key to Opportunity

"Thrift is the greatest asset an individual can have. He who lives up to his means, who lives from hand to mouth, can not weather unforeseen adversity. He can not meet the unexpected opportunity which knocks but once at a man's door. The thrift man has the golden key which opens the door to greater things.

"In prosecuting the campaign for national thrift the Savings Division feels it wise to take advantage of existing organizations rather than to attempt to superimpose entirely new machinery.

(*Continued on page 14.*)

COMMITTEE STUDIES SYSTEM OF INSPECTING MARKET GRAIN

Hopes to Make Federal Grading Work More Uniform

Trade, Milling, and Farmers' Organizations Represented in Body That Began Tour With Chicago Meeting; Purposes Outlined

To study the grain inspection and grading system in connection with the Federal grain grades, with a view to bringing about greater uniformity of inspection between the various markets, a committee composed of representatives of the most important grain trade and milling organizations of the country, the National Council of Farmers' Cooperative Associations, and of the Bureau of Markets and the Railroad Administration, met in Chicago, April 14. The committee then started on a tour of the larger markets east of the Rocky Mountains, intending to spend from one to three or four days in each.

Organizations Represented

The members of the committee are: Elmer Hutchinson, Arlington, Ind., chairman of the appeals committee of the Grain Dealers' National Association; J. W. Shorthill, York, Nebr., secretary National Council of Farmers' Cooperative Associations; R. S. Hurd, miller, of Wichita, Kans., representing the Millers' National Federation; W. J. Niergarth, grain dealer, St. Louis, representing the National Council of Grain Exchanges; C. W. Crawford, Chicago, representing the Railroad Administration; R. T. Miles, Chicago, in charge of inspection efficiency, Bureau of Markets.

The idea of such a committee originated with P. E. Goodrich, president of the National Grain Dealers' Association, and was developed through conferences with officials of the different organizations who appointed representatives. An-

Help Finish the Job—Buy Liberally of Victory Liberty Loan Bonds.

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nouncement of the projected plan was made in March by Charles J. Braud, Chief of the Bureau of Markets, Washington, who said:

Factors to be Considered

"The committee will visit the principal grain markets of the United States east of the Rocky Mountains, with a view to ascertaining all the facts possible with reference to grain inspection, in order to assist the Bureau of Markets in bringing about greater uniformity in the application of the official grain standards.

"I think the committee will want to consider carefully such factors as the following: Physical facilities for inspection, including amount and kind of equipment; suitability of inspection laboratories; methods of inspection procedure, including number of inspectors; methods and accuracy of sampling; cost of the service; switching and demurrage problems; reinspection; appeal privileges; and such other matters as may be deemed important by the committee. It seems to me that after the committee has made a survey of the important grain-grading markets and has obtained the information relating to these subjects the members will be in a position to recommend to the several markets and to the bureau ways and means of obtaining greater uniformity in the inspection of grain."

HIDE AND SKIN REPORTS TO ANSWER DEMANDS OF TRADE

Slight decreases in stocks of cattle hides, calf and kip skins, and increases in sheep and lamb skins, pigskins, goatskins, and horsehides on February 28 from holdings on January 31, 1918, are shown in the monthly report of hides and skins issued by the Bureau of Markets, Department of Agriculture.

Stocks in the United States on February 28 were: Cattle hides, domestic and foreign, 5,584,730 pieces; sheep and lamb skins, 8,826,399; pigskins, 157,372 pieces and 1,553,857 pounds of strips; horsehides—whole, 87,881; fronts, 63,764; butts, 172,161 pairs; and shanks, 123,358; calf and kip skins, 1,663,059; kangaroo and wallaby, 470,264; deer and elk, 211,846; goatskins, 5,670,216; kid skins, 226,760; cabretta, 843,341; and buffalo hides, 65,369.

In a statement given out with the report the Bureau of Markets states that the hide and skin reports are being issued in response to demands from all branches of the hide and leather industry and from producers and economists, who during the war realized the lack of information available on this phase of industry. Such information is said to be no less necessary in peace times, especially during the period of readjustment, when stabilizing influences are necessary and the trade is seeking and preparing to meet the demands for hide and leather products in foreign markets.

U. S. HOLDS SECOND POSITION AS BEEF-EXPORTING COUNTRY

Argentina Leads, With Australia Third, According to Late Figures

This Country Has Most Cattle on Farms; Early Slaughter, Breeding Up, and Intensive Feeding Help in Other Lands

Argentina, the United States, and Australia, in the order given, are the chief beef-exporting countries of the world, and Uruguay and New Zealand are of large, though of secondary, importance, while Brazil has started beef production and export that will assume enormous proportions if expectations are realized. These facts are shown in figures of the Bureau of Crop Estimates, United States Department of Agriculture.

The United States was far in the lead as an exporter of beef for many years, until the beef-producing resources of Argentina began to be utilized systematically. By 1909 Argentina took precedence in exports, although it had temporarily held it in 1903. While the beef exports of the United States were seriously declining from 1911 to 1914, until in the latter year they were less than the imports, Australia stepped ahead of this country as a beef exporter and held second place, after Argentina, until 1915.

U. S. Surplus Highest in 1918

The beef exports of the United States reached a summit of 731,000,000 pounds in the fiscal year beginning in 1906, and there was only a trace of imports. A downhill course followed, and by the calendar year 1914 the imports exceeded the exports by 93,000,000 pounds. In that year the imports were 259,000,000 pounds, but in subsequent years beef imports have been much less, although considerable, and they should be subtracted from the exports to arrive at the national beef surplus. This surplus, including a share of the unidentified meat, quickly rose to 425,000,000 pounds in 1915, was considerably below this quantity in the two following years, and expanded to 766,000,000 pounds in 1918, overtopping the highest previous year, 1906, by 35,000,000 pounds. The gross exports of domestic beef in 1918 were about 800,000,000 pounds.

Argentina had forged steadily ahead and permanently passed the United States in exports of beef in 1909, in which year the Argentina exports amounted to 621,000,000 pounds. By 1917 this quantity was more than doubled, and the record of that year stands at 1,334,000,000 pounds, including the meat unidentified in the trade report.

As far back as 1895 Australia exported 250,000,000 pounds of beef, but the subsequent exports were much below this until 1910, when 252,000,000 pounds were exported. The quantity rose to 491,000,000 pounds in 1915 and is recorded as 165,000,000 pounds in 1916 and 341,000,000 pounds in 1917.

Most Cattle in This Country

Beef exports in these three countries are not uniformly related to the number of cattle supposed to be on hand, either by census enumeration or by estimate. In the United States there were 51,000,000 cattle on farms on June 1 in the census year 1890, 68,000,000 cattle in 1900, and 62,000,000 cattle on April 15, 1910. At the low tide of 1913 and 1914 the cattle numbered but 56,500,000, as estimated by the Bureau of Crop Estimates, but recovery followed to 68,000,000 cattle in 1919, equaling the record for 1900.

Argentine cattle never with certainty exceeded 29,124,000 head, the census report for 1908. The census of 1914 found only 25,867,000 cattle, and the estimate for 1918 is 27,050,000 cattle. In Australia the number of cattle has ranged from about 9,000,000 to 12,000,000 head during the last 19 years, and in the more recent years has remained at 10,000,000 to 11,000,000 head.

It is apparent from the foregoing figures that increase of cattle in these three countries is a matter of some difficulty. A promising progression for a few years has been followed by a reversion, and this again by a progression, but in each of these countries the present number of cattle barely equals the number of about 20 years ago, and yet the average yearly exports of beef from these countries (above imports for the United States) increased from 925,000,000 pounds in 1895–1904 to 1,344,000,000 pounds in 1905–1914, and to 1,909,000,000 pounds in 1915–1917.

Gain of beef exports without corresponding gain in number of cattle on hand has been made possible by a more rapid turnover by means of slaughtering at younger ages, by a breeding-up process, resulting in heavier, beefy animals, and by more intensive feeding.

The estimated total value of farm live stock in Canada in 1918 was $1,326,766,000; horses, $459,155,000; milch cows, $307,244,000; other cattle, $398,814,000; total cattle, $706,058,000; sheep, $48,802,000; swine, $112,751,000.

ROOM IN UNITED STATES FOR MANY FARMS TO BE DEVELOPED

Great Areas Now Unused May Be Put Into Service

Drainage Irrigation and Clearing Needed to Make Waste Land Useful When Economic Conditions Warrant

The United States has approximately 850,000,000 acres of land—45 per cent of the country's land area—in crops or available for crop production, according to recent estimates of United States Department of Agriculture specialists.

Of this amount approximately 480,000,000 acres were improved land in 1910; the remainder consisting of 200,000,000 acres of potentially arable forest and cut-over land, 60,000,000 acres of swamps and other wet lands needing drainage, 30,000,000 acres of potentially irrigable land, and about 80,000,000 acres of unimproved land other than woodland.

Over 1,000,000,000 acres of land in the United States are not adapted to cultivation, of which at least 360,000,000 acres may be used for forests and about 600,000,000 acres for grazing. Most of the grazing land is located in the Western States. In addition there are about 40,000,000 acres of desert land, and 40,000,000 acres of land in cities, rural highways, and railroad rights of way, an amount which will gradually increase with increasing population.

Why Land Lies Idle

Much of the nonarable land within the domain of Uncle Sam consists of land once farmed and now abandoned, as well as areas which no one has thought it worth while trying to make into farms. Topographic and climatic conditions are of primary importance in explaining why so large an area remains unimproved. Nearly one-fifth of the United States is too hilly or rough for the successful production of crops. This mountainous or stony land, where rainfall is sufficient, is adapted to forests, and where the rainfall is light, is grazed by roving flocks of sheep or by cattle. Lack of sufficient rainfall is responsible for the absence of crops in nearly one-third of the United States. During occasional years of heavier rainfall, large profits may be made growing crops in these semiarid regions, but in the long run, it pays better in most localities to use such land for grazing and grow in swales and seepage basins only a few acres of crops for supplementary feed.

Another factor restricting the cultivated area is the length of the growing season. Over a large extent of elevated land in the West, and also in the Adirondacks and a part of northern Maine, the average growing season is less than 90 days, while frosts may occur during the summer. There is also much land where the soil is too sandy or infertile for the profitable production of crops. Such soils are better adapted to forests, and when cleared for agricultural use are generally soon allowed to grow up again in brush and trees.

May Clear Forest Land

About one-fifth of a billion acres of the cut-over land and woodland in the United States might be cleared up and the stumps removed so that the land would be available for productive farming. However, this work would involve heavy expenditures, and on this account clearing is slow, as farmers usually prefer to locate on land which does not involve so much pioneering. If all this agriculturally suitable forest and cut-over land could be made into farms averaging 160 acres, it would provide 1,250,000 farms, an increase of about 20 per cent over the present number. It is believed unlikely that more than 50,000,000 acres, or enough for perhaps 300,000 farms, will be cleared by the present generation unless the Government assumes responsibility.

Another undeveloped agricultural resource consists of swamps and overflow lands that may be drained. It is estimated that there are some 60,000,000 acres of such land suitable for the production of crops after reclamation, or enough to make 1,000,000 farms of 60 acres. Most of this land, located largely in the Mississippi River bottoms and other river bottoms of the southern Coastal Plain and in the peat bogs and muck lands of the lake States and northeastern States, is potentially fertile, but as drainage is expensive it will probably be at least another half century before all or even much of this area is reclaimed.

Opportunity in Irrigation

The irrigated sections of the Western States have approximately 30,000,000 acres of land still available for farming purposes if complete utilization is made of the potential water supply. This is double the present area of the irrigated land and would provide 340,000 farms averaging 87 acres, which is the average farm acreage of irrigated land shown by the 1910 census. However, construction of irrigation dams and canals is so expensive that it will be many years before much of this land is put in crops.

In the Eastern States and in the Great Plains region much waste land is classified in the census reports as "unimproved land other than woodland." It consists of stony upland pastures in hilly regions and other parcels of waste land in eastern farms and of grazing land in western ranches, aggregating in all about 50,000,000 acres. Some of this land in the East at one time was cropped and now constitutes in part the so-called abandoned farms. If prices of farm products continue high and farm labor again becomes comparatively cheap, a portion of this land will undoubtedly be reclaimed for crop production. The further development of dry farming may also make room for a few more farmers in the West. Under the 640-acre grazing homestead act passed in 1916 more than 45,000 applications had been made and approved by October 1, 1916. In the opinion of department specialists, however, most of the grazing homesteads offering promise of supporting a family have been applied for.

WHERE MOST GRAIN GROWS.

In a wedge-shaped region east of the 100th meridian and bounded by a line from southwestern Pennsylvania across Kentucky and Missouri to Oklahoma, thence north to North Dakota and back across Minnesota, Wisconsin, and Michigan to Pennsylvania—in all about one-fifth of the United States—are produced four-fifths of the corn, three-fourths of the wheat and oats, and three-fifths of the hay crops of the Nation.

This belt, most of which can be plowed easily and has a fertile soil, is the most productive area in the world devoted to corn, which is the most productive per acre of the food crops.

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination on April 29 and May 20, 1919, for specialist in cotton classing, for men only. Three vacancies in the Bureau of Markets, Department of Agriculture, at entrance salaries ranging from $2,400 to $3,600 a year, will be filled from this examination.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

If a cake of ice is kept floating in the water surrounding cream cans when the ordinary cooling cans are used, the temperature will remain at about 40° F.

Bunk Houses Attract Farm Workers; Department Offers Plans to Farmers

Because of their convenience and comfort for both the farmer's family and hired hands, bunk houses are popular in many sections of the country, particularly where several unmarried men are retained as permanent help. As a part of its effort to aid farmers in providing quarters that will attract more desirable labor to the farm, the United States Department of Agriculture has prepared plans for improved farm bunk houses.

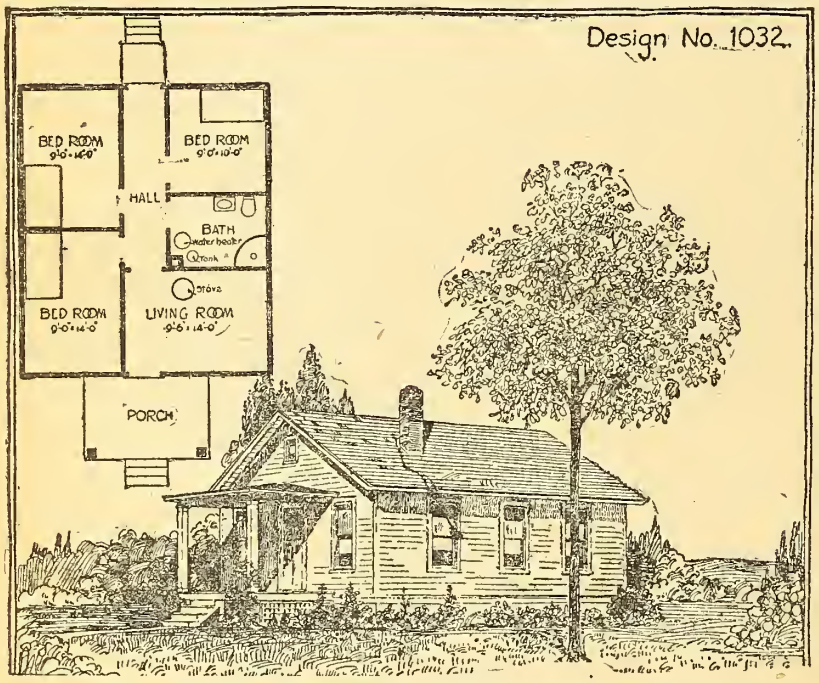
The bunk house may be equipped with or without kitchen and dining room, according to the desire of the owner, who may wish the hired help to eat alone or with his family. Mess facilities in the bunk house are regarded as particularly valuable during the harvest season and other periods of rush work when extra labor is employed. Even though such equipment be not used continuously throughout the year, the Federal rural engineering specialists point out the value of these facilities for emergency use.

On many of the better farms an arrangement that has pleased both the hired men and the housewife, according to the Federal experts, is a comfortable bungalow of four or five rooms for the use and privacy of the family, and a detached bunk house, in which the laborers can live more happily and independently than would be possible were they quartered in the home of the farm owner. Experience has repeatedly demonstrated that where desirable permanent farm workers are housed in handy, cozy quarters, they take pride in maintaining their abode in trim and neat order.

Good Homes Get Workers

Good living conditions appeal to all grades of farm workers and are ingenuous lures in getting and keeping competent and reliable unmarried helpers.

The Rural Engineering Division of the department has prepared plans, which will be sent free to any farmer on request, as examples of convenient, inexpensive, and practical bunk houses. These dwellings possess the special feature of being adapted to extension and expansion as the need for additional housing space arises. The simplest house, No. 1032, provides three private bedrooms, a living room, and a bathroom. It is heated with an airtight stove, but in especially cold climates it may be equipped with a furnace.



A simple and substantial bunk house, which is commodious, providing space for three private bedrooms, a living room, and a bath.

Another plan, No. 1029, provides a living room, dining room, dormitory, bunk room, kitchen, and cook's room, and is so arranged that more space may be added as desired. There is direct connection between the wash room, which is provided with individual lockers for the work clothes of each laborer, and the bunk room, where each worker has another large locker in which he can keep his "dress-up" clothes. The men can enter the wash room directly from outdoors, and hence can wash and remove their dirty clothes before entering the dining room. The kitchen and cook's room are so isolated that the men need not pass through them in entering or leaving the bunk house. If a kitchen and dining room are not desired, this space can be devoted to another bunk room and the cook's room eliminated. The kitchen stove, a water heater in the bathroom, and a large airtight stove and fireplace in the living room ordinarily will furnish adequate heat for this house, although, if desired, a cellar may be built under part of the structure and a heating system installed.

May Expand Accommodations

A third plan, No. 1011, contemplates a slightly different arrangement. The bunk room is directly accessible to both the living room and the wash room, which also has an outside entrance. The cook's room, kitchen, and dining room may be converted into another bunk room if mess facilities are not desired. The rear entrance from outside to the kitchen is also a desirable feature. This house may be heated in the same manner as the one just mentioned.

By the use of double-deck beds and Army cots, supplemental to the more comfortable accommodations provided for the permanent help, the capacity of the bunk house can be increased materially during harvesting, thrashing, haying, and silo-filling times.

If needed, the living room also may be converted into sleeping quarters during times of congestion. Although emergency labor does not object to occupying shakedown bunks for a few nights, it is advisable that comfortable sleeping quarters be provided for the year-round workers on the farm.

STARVING OUT ROOTS BEST ATTACK ON CANADA THISTLE

Every farmer who has had trouble in eradicating Canada thistle will welcome Farmers' Bulletin 1002, of the United States Department of Agriculture, which gives methods for its control on both small and large areas.

Control measures should aim at complete eradication, says the bulletin. If only a few plants survive, they will usually cause serious reinfestation in a comparatively short time. To secure

thorough eradication the underground parts must be completely killed, since it is principally by these that the pest lives over from year to year. The most practical method of exterminating the underground parts is to starve them out by frequently destroying all the top growth of the plants. Since plants can assimilate food only by the aid of the green leaves the frequent cutting of the tops uses up food stored in the fleshy roots. The weed is much easier to eradicate during droughts than during wet weather, and operations of hoeing, plowing, harrowing, and cultivating directed against the thistle should never be undertaken when the land is wet.

Eradication on Small Areas

The importance of eradicating the Canada thistle on small areas can hardly be overestimated, says the bulletin, since the pest spreads rapidly and a small patch may be the direct cause of infesting an entire farm almost before the farmer is aware of the presence of the weed. The most common and practical method on small areas is the frequent cutting of the green growth preferably below the surface of the soil. Perseverance is needed to assure success.

Eradication on Large Areas

Two principal plans of eradication are applicable on large areas—clean cultivation with a crop, and summer fallowing followed by a cultivated crop. The first method has the advantage of killing the weeds without losing the use of the land while so doing. Summer fallowing followed by a cultivated crop keeps in check the top growth and starves the root system, thereby eradicating the weed.

Virgin Peanut Oil Wins Favor; Merit in Cold-Pressed Product

Cold-pressed virgin peanut oil with a delicious flavor is being made in increasingly large quantities in this country, say the oil specialists of the Bureau of Chemistry, United States Department of Agriculture, who have made a study of the production and conservation of American edible oils. This product has a characteristic flavor pronounced by many consumers here and abroad to be far more delicious than the oils which are hot pressed and subjected to a necessary refining process, leaving them practically tasteless. Furthermore, many consumers consider that virgin peanut oil compares favorably with virgin olive oil.

Until recently very little virgin peanut oil was made in this country. The American practice has been to cook the peanuts and then subject them while hot to a very high pressure. The oil secured in this way must be submitted to a refining process before it is suitable for the table. Cold-pressed peanut oil, when made from sound, sweet nuts, need not be refined.

By the cold-pressed process a larger proportion of the oil of the peanut can be secured for edible purposes than by the hot-pressing method. The hot-pressed oils make a satisfactory oil for both table and cooking purposes by refining, but in the refining process a part of the oil is converted into soap stock, thus going to the soap kettle instead of to the table.

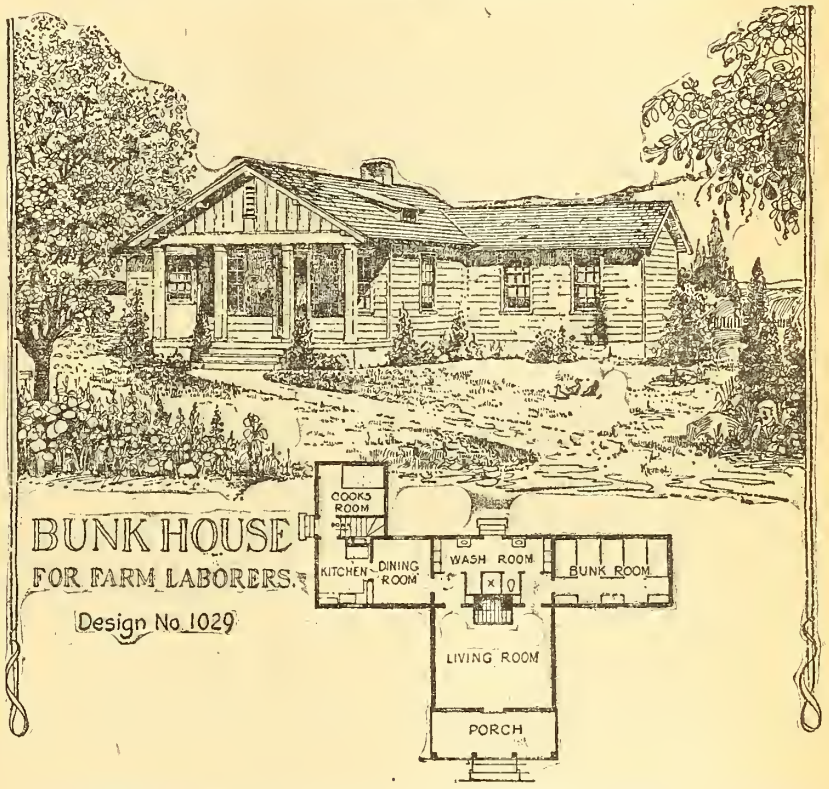
Considerable waste has resulted in the past, because some American mills were pressing part of the shell with the peanut kernel. These shells contain less than one-half per cent of oil, but they readily aborb the oil from the kernels when pressed with them, and come out from the press with from 5 to 7 per cent of oil. As the average pressed cake contains 6 per cent of oil, the shells in the cake from a ton of nuts will absorb 27½ pounds of oil in addition to 2½ pounds they originally contain.

A further economic loss comes when peanuts are pressed with the shells left on, for pressed cake containing shells can not be used for human food. But when blanched kernels from which the shells have been removed are employed in making oil, the cake, which may contain 7 per cent of oil, can be ground into meal and used with wheat, corn, and similar starchy flours to form very palatable and highly nutritious cakes, gems, and hot breads.

Factories now in operation are producing by the cold-pressing process virgin peanut oil of high quality and excellent flavor.

Rise of Farm-Product Price Higher Than Farm-Labor Pay

A composite crop and live-stock price has been provided by the Bureau of Crop Estimates, United States Department of Agriculture, and the advance of this price since 1914, or the beginning of the war, may be compared with the advance in the wage rates paid for farm labor. From 1914 to 1915 wage rates gained 1 per cent and the price of crops and live stock fell 3 per cent, but since 1915 wage rates have not gained on 1914 as much as the price of crops and live stock has. The advance in wages in 1916 was 10 per cent above 1914, while the price of crops and live



These quarters are provided with facilities for feeding and housing the hired help, and are adapted for addition, if desired.

stock advanced 12 per cent. In the next year, 1917, wages rose 37 per cent above 1914, while the price rose 74 per cent, but in 1918 the disparity between the two in the advance was slightly reduced and the gain of wages over 1914 was 65 per cent and of price of crops and live stock 96 per cent.

It is well known that wage rates are more stable than prices, as a general fact, and it is according to rule that the wage rates of farm labor have not kept pace with the advance of prices of farm products during the war, even though much labor was drawn from the farm by higher wage rates elsewhere. The two movements began to converge in 1918 and their places with regard to each other in more normal times to follow remain for the future to determine.

AMERICAN EXHIBITS INVITED

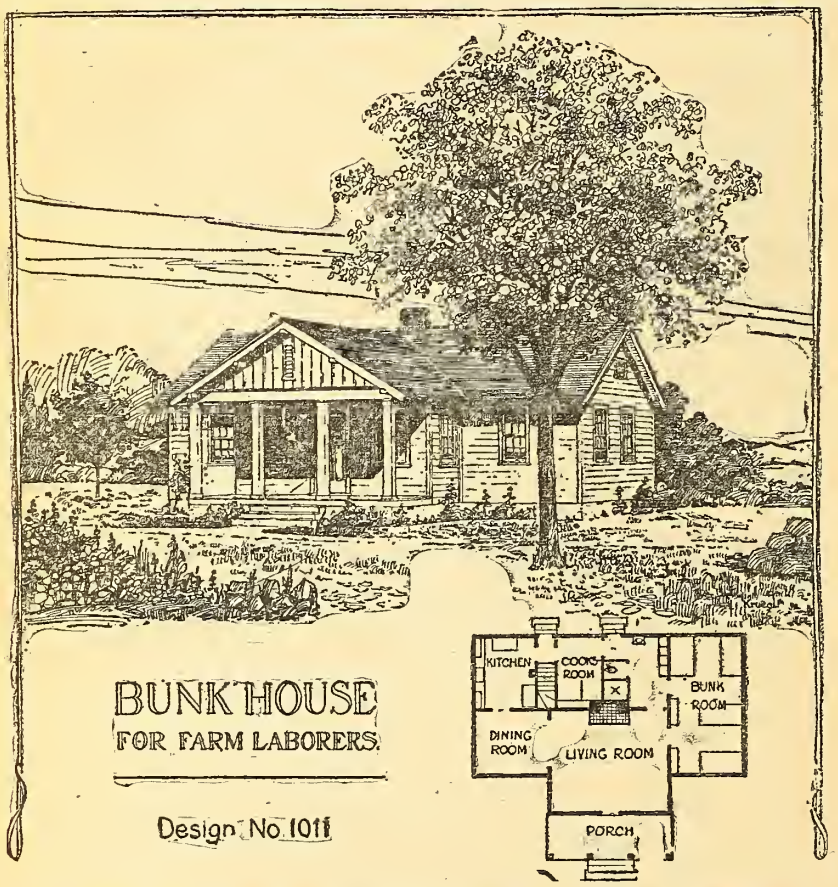
American breeders of blooded cattle and manufacturers of motors, trucks, agricultural machinery, tools, implements, rolling stock, and farm railways will be welcomed as exhibitors at the National Exposition of Venezuela, which will open about the middle or end of May, the United States Department of Agriculture has been informed by the Department of State.

"This is an opportune time, as the farmers of Venezuela are very prosperous," says a telegram to the Department of State from the American legation at Caracas, Venezuela.

Sorghums Good for Silage; Resist Drought, Yield Well

Because sorghums are good crops to grow for silage in regions of light rainfall, the United States Department of Agriculture is urging that they be grown more extensively in those sections to insure ample feed for stock. Sorghums need less moisture than corn and in many sections will produce a larger yield of forage per acre. When properly made into silage they supply a succulent feed which has a high feeding value. Either the saccharine (sweet) or the nonsaccharine (nonsweet) varieties are used. Of the former the orange and amber varieties are the most desirable varieties and of the latter kafir, milo, and feterita are common varieties. Experiments at the Kansas Experiment Station show that silage made from both kafir and sweet sorghum is nearly equal in value to corn silage for feeding cows that produce milk. Since the difference in the results was not great it is apparent that when the sorghums give a considerably larger yield per acre, as is the case in seasons of drought, and in sections where there is a limited amount of rainfall, they are the more profitable source of silage.

To obtain a good quality of silage from sorghums it is very important that they be cut at the proper stage of maturity. This stage is reached when the seed is mature. Testing the stage of maturity of sorghum may be done by twisting a stalk in the hands and noting the amount of sap it contains. If it contains much sap, the crop is too green to be made into silage, and if put up at this stage sour silage is sure to result, especially with the sweet sorghum, which is high in sugar content. It is better to risk frost than to put the sorghum into the silo before maturity. A crop that has not been siloed before frost should be put up immediately after, and water should be added to keep it from becoming dry.



This attractive bunk house can be built as large as desired, and is in every respect satisfactory.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended April 12, 1919:

A Simple Steam Sterilizer for Farm Dairy Utensils. Reprint. Farmers' Bulletin 748.

Conserving Corn from Weevils in the Gulf Coast States. Farmers' Bulletin 1029.

The Woolly White Fly in Florida Citrus Groves. Farmers' Bulletin 1011.

How Dairying Built up a Community. Yearbook Separate 765.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

CORN STANDARD RISING

Merchantable corn was 82.4 per cent of the entire crop during the last 36 years, and the percentage has been a declining one. In 1888–1897 the mean was 84.6 per cent; in 1898–1907, 83.4 per cent; and in 1908–1917, 80.2 per cent. The standard of merchantability appears to be rising. The fraction for 1918 was 82.5 per cent, or almost the mean for 36 years, but above the mean of the preceding 10 years. The highest fraction in 36 years was 89.1 per cent in 1906, and the lowest 60 per cent in 1917.

Fertile Soil, Well Drained but With Enough Moisture, Needed for Fig Growing

One of the reasons some fig orchards have failed in the South Atlantic and Gulf States is because the trees have not been planted in suitable soils. While fig trees will grow on a wide range of soil types, it is essential that the soil be well drained, well supplied with moisture, and reasonably fertile, says Farmers' Bulletin 1031, recently published by the United States Department of Agriculture as an aid to fig growers. It gives directions for planting and caring for figs, as well as for caring for the crop after it has been produced.

Figs are usually propagated from cuttings, although other methods, such as layering, grafting, and budding, are sometimes used. Cuttings are made in the dormant period from well-matured wood of the preceding season's growth. The center of the branches used for cuttings is occupied by a large pith, except at the nodes, or points where the leaf stems are attached. In making cuttings the lower ends should be severed just below the nodes. They should be about 8 or 10 inches long, the length being governed largely by the vigor of growth and the distance between the buds. If made in the fall, they should be packed in damp moss or moist sand and kept in a cool place until the weather is suitable for planting in early spring, but if cuttings are made upon the approach of spring they may be planted in the nursery rows at once.

Some Rules for Planting

In planting the cuttings one bud should remain just above or even with the surface of the ground and the soil should be packed firmly about them. Under favorable conditions they will take root and develop in one season into trees suitable for permanent planting. For the proper planting of such trees the soil should be deeply plowed and thoroughly prepared. It is essential to give the trees a good start. Though not infrequently injured by cold, the trees are commonly considered less subject to winter injury after they are 3 or 4 years old than when younger.

Before the trees are set the grower should decide whether he prefers to have fig trees growing from a single stem or bushes with several shoots starting from the ground. If the bush form is preferred, the trees may be planted somewhat deeper than where the tree form is desired, since deeper planting will tend to induce branching from below the surface. In either case the newly set plant should be headed back. The exact height at which they are headed varies with the ideas of different growers, but from 12 inches to 3 feet above the surface is usually satisfactory. Very low heading will tend to induce the bush form of growth.

Cultivation Needed

The young fig trees have little chance in competition with weeds and other vegetation. This is one of several reasons why they should be well cultivated. The young trees will not thrive if moisture is lacking, and this can be conserved by cultivation. As the roots grow close to the surface of the soil, tillage implements which do not cut deeply, but which thoroughly stir the surface soil, should be used. If humus is lacking, cover crops, such as the Iron cowpea or velvet beans, both of which are immune to nematodes, may be planted with beneficial results, provided they do not rob the trees of too much moisture.

Fig trees and bushes are pruned to keep the tops open to the sunlight and air, to keep them within bounds, to remove dead wood and interfering branches, and to make the harvesting of the fruit easier. Some growers are opposed to pruning, because the wounds do not heal readily and premature decay may result, but if the branches are cut close to the main stem little trouble from this source is likely to be experienced. Pruning should be done annually during the dormant period of the trees, preferably after the coldest weather of winter is past and before growth starts in the spring.

The bulletin discusses diseases and insect pests of figs, describes a number of common varieties, and gives directions for preserving and drying the fruit.

Millers and Department Making Tests of Moisture in Wheat

The importance of the moisture content of wheat in its effect on yields and quality of flour is recognized by millers and has led to their cooperation with Department of Agriculture investigators in making tests of moisture content of wheat and mill products at a number of flour mills.

Wheat when received at the mill is seldom, if ever, in the best condition for milling, its moisture content being too high or too low or not properly distributed through the kernel. Various methods of tempering wheat to give it the right moisture content for the outer and inner parts of the kernel are in use at mills.

The results of investigations of moisture content made at Kansas City on wheat before and after its preparation for milling on tempered wheat and on different mill products during the course of their manufacture are contained in Department of Agriculture Bulletin 788, just issued. This publication contains tables showing moisture content of hard red winter wheat before and after cleaning and tempering, and also tables of moisture content of the various mill streams of mill stock. In general, the moisture content of the flour streams is reduced as milling proceeds from the first break to the end of the process.

One of the conclusions of the investigators is that very little of the water added to the wheat during tempering penetrated deeper than the pericarp. The moisture content of the better grades of flour milled, irrespective of the amount of water added during tempering, closely corresponded to the percentage of moisture contained in the untempered wheat.

EXPLOSIVES FROM WOOD PULP

When a cotton shortage was threatened before the armistice, the Forest Products Laboratory of the Forest Service, United States Department of Agriculture, entered a practically new field of investigation—finding the practicability of using wood pulp as a source of explosives. Methods for the production of acid and sulphate pulp suitable for nitrating were developed, and tests at a Government arsenal proved conclusively their suitability for nitration purposes. These results have other applications, particularly in the manufacture of lacquers and pyroxylin products, and the laboratory is continuing its work along these lines.

SILOS SHOW GAINS

Wisconsin had 65,418 silos on farms May 1, 1918, a gain of 13 per cent in one year, according to returns from assessors. In Ohio the number of silos reported by assessors for April 1, 1918, was 30,788, a gain of 44 per cent in one year.

Under general conditions about one pound of ice will be required to cool and keep one pound of cream in good condition until delivered to the creamery, when deliveries are made three times a week.

Weekly News Letter

Published every Wednesday by the
Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

FARM LANDS AND PRODUCTS VARY IN RELATIVE VALUES

Farm land value has not advanced in the same degree that the composite price of crops and live stock has from the beginning of the war to 1918. Results of a recent investigation by the Bureau of Crop Estimates, United States Department of Agriculture, revealed that, although farm land value alone gained in 1915 and led in the relative advance in 1916, it lost its lead in 1917 and, moreover, fell far behind the relative gain in the price of crops and live stock in that year and in 1918.

From 1914 to 1915 farm land value, not including that of buildings, increased 11 per cent, while the price of crops and live stock lost 3 per cent. In the following year land value went up 23 per cent above 1914 and the price of crops and live stock also advanced, but only by 12 per cent. A reversal of the relativity of these movements appeared in 1917, when land value gained only 38 per cent on 1914 and crops and live stock gained 74 per cent. The divergence increased in 1918, since the gain above 1914 was 50 per cent for land value and 97 per cent for crops and live stock.

Farm land value is supposed to be related, at any rate largely related, to the net profit of farming, and in fact it is often somewhat affected even by single years of high or scant profit, yet the value of farm land advanced in 1915, although the price of crops and live stock declined, in comparison with 1914, and gained relatively much more than price did in 1916; but, on the other hand, its relative gain in 1917 and 1918 was far from equaling that of price. There has been much disparity, first on one side and then on the other, between the two movements of land value and product price.

Perhaps a scarcity of farm labor weakened the demand for farms in the last two years, and perhaps, also, the net profit of farming, because of extraordinarily high cost of production, was not as great as the high price of products would indicate superficially.

CALVES A GOOD FOUNDATION FOR BUILDING DAIRY HERD

Young calves from good dairy cows are a satisfactory foundation for starting a dairy herd, in the opinion of United States Department of Agriculture specialists. Ordinarily the method advocated is to grade up common cows with a pure-bred bull, requiring a number of years of patient selection and breeding, a period sometimes discouraging to an energetic dairyman. Frequently this causes farmers who want results too quickly to change breeds.

Good Mature Cows Costly

It is expensive to buy mature dairy cows that are free from disease, that have good breeding and show desirable productive ability. Often, especially in new dairy sections, a farmer buys mature stock without being properly prepared to care for it, and many discouragements follow. To a great extent most of this difficulty can be avoided by buying good grade heifer calves from herds of well-established milk production. In some dairy regions it is a common practice to sell the heifer calves for veal. These calves, while only grades, are usually from good producing ancestors and carry a productive ability much greater than common cows.

The buying of such calves to start dairy herds has been tried in several States with excellent results. Of course, the cost of small calves is much less than mature animals, and the danger of disease is also greatly lessened. In general, shipping is simpler. Calves may be shipped by express at from two to four weeks of age, depending upon the distance, with good results if they are properly cared for upon arrival.

Be Sure of Calves

In buying it is important to deal only with dairymen. Do not buy from men who purchase calves at stockyards to ship back to the farmers, because it is not always possible to determine the breeding of the calves, and calves that are physically unfit may be shipped.

In some cases shipments are made c. o. d., which enables the buyer to see the calves before paying for them. A man who sells calves in this way makes a special effort to please his customers. It seems desirable, especially in sparsely settled sections, that more attention be given to perfecting a satisfactory system of distributing dairy calves to farmers.

Advantages in buying small calves as a foundation for a dairy herd are summarized as follows:

Small investment; better breeding; greater freedom from disease; in case of accident, loss is smaller; raising calves stimulates interest, and in consequence causes better care of live stock; a satisfactory herd can be established more rapidly than by grading up common cows.

STEAM STERILIZATION KILLS DISEASES INFECTING SOILS

Steam sterilization of seed beds to control diseases and kill weed seeds and hibernating insects is recommended by the United States Department of Agriculture, and is described in detail in a bulletin issued for free distribution.

The open-pan method of sterilization, which is described as the most satisfactory yet developed, brings about the direct application of steam to the soil by means of an inverted pan or hood. The equipment needed includes a boiler of 20 horsepower or greater capacity, heavy steam hose, iron pipe, canvas or burlap, and a steaming pan to cover about 72 square feet. Steam of about 100 pounds pressure should be applied to the area under the pan for 30 minutes, when the pan is moved to the next area, and a covering is placed over the soil just treated to conserve the heat and allow it to penetrate to the lower soil. Seed may be safely sown 12 hours after the steaming.

The bulletin which describes the process, No. 996, "Steam Sterilization of Seed Beds for Tobacco and Other Crops," is designed especially for tobacco growers, but contains information of value to those who raise other intensive crops.

"The method has been demonstrated to be effective for greenhouse work," the bulletin says, "and it is easily seen that it can be applied to hotbeds and cold frames."

When the farmer's wife went "to the store" in 1918 she paid 178 per cent more for sheeting than she did in 1914, 176 per cent for brooms, 257 per cent for calico, 121 per cent for dinner plates, 150 per cent for dish pans, 49 per cent for fruit jars, 94 per cent for kitchen chairs, 77 per cent for lamps, 210 per cent for muslin, 108 per cent for stoves, and 99 per cent more for wooden wash tubs.

Uniform State Laws Needed to Protect Migratory Birds; Present Statutes Help

Perhaps migratory birds will never again be seen in such vast flocks as when the early settlers pushed their way westward, but specialists of the Bureau of Biological Survey, United States Department of Agriculture, believe their numbers are now increasing year by year. Widespread interest in their preservation, prompted by American sportsmen who saw the birds would be exterminated by unchecked destruction, is thought well justified when it is considered that the birds' food and economic value amounts to many millions of dollars annually. Growth of sentiment for the conservation of so valuable a resource by preventing destruction through spring shooting of game birds and by other protective measures has been notable in the last half century.

Many States Protect Birds

In 1900 only 9 States had laws prohibiting all-spring shooting, while in 1918 there were 31. Only 3 States now afford no legal protection. Uniform and adequate preservation was first given attention by the Federal Government in 1904, when a bill was introduced in Congress, but failed to become law. The subject, however, was kept before Congress almost continuously until the enactment of the migratory bird law in 1913.

This Federal statute merely conferred on the United States Department of Agriculture the power to fix closed seasons, during which it would be unlawful to capture or kill migratory birds. This law did not provide for effective enforcement, but it exerted a wonderful influence upon the public mind, and its passage laid the real foundation for more adequate protection. Fully 95 per cent of the sportsmen abided by the regulations established under this law and refrained from shooting during the closed seasons.

Law's Good Effect Shown

The result was almost instantaneous. Waterfowl and other migratory game birds not only showed at once a marked increase in numbers, but owing to the cessation of spring shooting remained unmolested in ever-increasing numbers to breed in places from which formerly they had been driven every spring by incessant gunning. At the end of the five years during which this law was in operation State game commissioners and leading sportsmen were practically unanimous in their expression that wild fowl were more abundant than at any time in the preceding 25 years.

The marked improvement under this law instilled a new spirit into the advocates of bird conservation, and showed the wonderful possibilities under a Federal law broad and comprehensive enough not only to protect the birds during the mating and breeding season, but to equalize hunting privileges and opportunities by more uniform State laws.

Treaty Further Protects

To protect birds further a treaty affecting birds migrating between this country and Canada was concluded in 1916 between the United States and Great Britain. Altogether 537 species of migratory birds are included in the various families protected by the treaty. It provides for continuous protection for migratory insect-eating birds and certain other migratory nongame birds, and protection for 5 and 10 years for certain migratory game birds. The hunting season for other migratory game birds is limited to a period not exceeding three and one-half months between September 1 and March 10 of each year, except shorebirds in certain Northeastern States, where the hunting season must be between August 16 and February 1. Regulations promulgated under the act of Congress, approved July 3, 1918, to give effect to the treaty, establish open seasons on shorebirds in the Northeastern States from August 16 to November 30, and with this exception no migratory game birds can be hunted in the United States between February 1 and September 15, inclusive, of each year. The treaty does not, however, include some valuable birds, such as quail, pheasants, grouse, and wild turkeys. These still remain wholly within the jurisdiction of the States. Approximately 220 species of migratory birds are also excluded from the terms of the treaty, because they are not specifically named or do not feed chiefly or entirely on insects.

Uniform Laws Needed

The Federal laws for the protection of migratory birds are expected to go a long way toward insuring a supply for all time, but the interests of the States are so inseparably related to the interests of the National Government that all efforts to conserve these birds must be coordinated for full success, Federal officials point out. Much already has been done along this line. The open seasons for wild fowl in 25 States have been made to conform to the Federal seasons, and in many other States game commissioners and sportsmen have manifested a spirit of cooperation in game conservation that indicates a general sentiment favoring uniformity in State and Federal laws.

Preparedness a Vital Factor in Use of Thrashing Machines

Enormous waste of grain and much loss fail in the midst of the thrashing season, because of the inefficient work of threshing machines that have not been thoroughly repaired and put in working condition before the beginning of the working season. Defective parts are overlooked or neglected in the hope that they will last through the season. When they fail in the midst of the thrashing season, serious losses often result before repairs can be made. In or just before the threshing season new parts are difficult to get promptly because of the rush of orders from many who have procrastinated.

As soon after the close of the thrashing season as possible, says the United States Department of Agriculture, the separator should be overhauled, necessary repairs and adjustments made, and needed parts ordered. This not only will prevent loss of time and money during the next working season but will lengthen the life of the machine.

A bulletin has just been issued, as No. 5 in the series on "Care and Repair of Farm Implements," giving detailed instruction on how to "lay by" grain separators. The discussion of every part of the machine is minute, constituting a handbook for the overhauling and repair of grain separators between seasons. It is a contribution from the Bureau of Public Roads and is issued as Farmers' Bulletin 1036. Taken in connection with Farmers' Bulletin 991, which treats of operating adjustments, it is believed to constitute a complete thrasherman's guide.

In the annual report of the Canadian Bureau of Statistics, recently issued, it appears that the average value of farm land in the Dominion, including improved and unimproved land and buildings, was $46 an acre in 1918. The average was $44 in 1917, $41 in 1916, $40 in 1915, and $38 in 1914.

Power machinery for cutting firewood offers a practical solution of the fuel problem on farms where wood is available.

Fumigation Recommended as Sure Way of Saving Corn from Weevil Ravages

Despite the fact that corn in the Gulf Coast States is peculiarly liable to injury by weevils, any farmer, no matter how unfavorable the conditions, can save his corn if he will exercise his own ingenuity and avail himself of the aid that is placed at his disposal through the county agricultural agent and other agencies. That assurance is given by specialists of the United States Department of Agriculture in a Farmers' Bulletin, No. 1029, just published.

Fumigation with carbon disulphid, commonly known as "high life," is the one sure means of getting rid of the weevil, though certain cultural methods—the selection of seed with a view to obtaining ears with long, tight husks, trap rows of early varieties, and early harvesting—aid in reducing the number that must be killed by fumigation. Carbon disulphid is a water-like liquid from which, when exposed to the atmosphere, a heavier-than-air gas is generated and sinks to the bottom of the crib or other container. It is therefore necessary for best results that the fumigatorium, whether barrel, box, bin, or crib, be gas tight.

One, two, or three fumigations may be necessary. Ordinarily one thorough fumigation immediately after the corn is stored will carry it through the winter practically weevil free. If the corn is to be kept later than the beginning of warm weather in the spring, a second and sometimes even a third fumigation may be necessary. This is a matter that each farmer must determine for himself. Close examination of the corn will reveal whether weevils are present or not. If they are found to be present, even in small numbers, fumigation is desirable. Some weevils ordinarily escape destruction by fumigation, and if the process is deferred until they are present in large numbers those that are able to escape may be sufficiently numerous to reinfest the entire quantity of corn in short order. If the fumigation be done when the weevils are few, the number that escape will be so nearly negligible that a long period must elapse before their progeny can become largely injurious.

Fumigation Not Costly

The cost of fumigation is comparatively small. Given a gas-tight crib or other container, it is an extremely economical process. If such a container must be constructed, not more than one-tenth of the cost is properly chargeable to the current crop, as the equipment may be expected to last for at least 10 years.

Carbon disulphid can be bought at from 8 to 20 cents a pound, depending upon the quantity in which it is purchased. In a gas-tight crib or other container, 2.8 pounds of the chemical is sufficient to fumigate 100 bushels of corn with the husks on; 2 pounds is sufficient for an equal quantity of slip-shucked corn; and 1.6 pounds for an equal quantity of shucked corn. Figuring the cost of the chemical, then, at the maximum of 20 cents a pound and allowing for fumigations, the cost of treating for corn with the husks on is a trifle over one-half cent a bushel, for slip-shucked corn a trifle less than one-half cent a bushel, and for shucked corn about one-third of a cent a bushel.

For that trivial cost may be prevented a loss to corn that averages not less than 10 per cent for the entire Gulf coast and South Atlantic regions. Florida, fairly beginning to grow corn in quantities, lost 1,260,000 bushels by weevil attack in 1916, the last year for which a close estimate has been made. County agents in South Carolina estimate that the weevil losses in some counties of that State run as high as 75 per cent, grading down to not more than 2 per cent in others, but totaling nearly 30,000,000 bushels of corn for the State. Losses in other sections of the Gulf and South Atlantic coast country vary from place to place and somewhat from season to season, but they constitute, everywhere and every year, a severe drain on the farmer who does not employ preventive measures. To avoid that loss, many farmers sell their corn early and in an unfavorable market, only to be forced later in the season to buy it back at greatly advanced prices from the dealer or storage man who has saved it by the exact means that are available at little cost to the farmer himself. The increased price that he pays the dealer for his own corn would meet the cost several times over of fumigating it at home.

Insects Included as Weevil

The term weevil, as applied to corn-destroying insects in the Gulf coast country, includes several distinct forms, though the "black weevil," sometimes called the "rice weevil," and the "fly weevil," or Angoumois grain moth, are the principal ones. There is no considerable variation, however, either in their methods of attack or in the means of guarding against them. All of them are extremely small insects that burrow into the corn grains and, without leaving much external sign of their presence, eat out the interior. Corn that appears sound under casual observation may have lost from 10 to 50 per cent of its weight from weevil injury. Every Gulf coast farmer is more or less familiar with the weevil, but he is likely, nevertheless, to suffer his corn to be damaged severely before he becomes aware of their presence. Both of the chief weevils produce several broods a year and have the power of tremendous expansion in numbers in comparatively brief time.

In order to keep the number of weevils at a minimum, the Department of Agriculture points out, the farmer should adopt certain cultural methods unfavorable to the insects. The chief of these is to select his seed corn with a view to growing ears with long, tight husks. In the kind of ear that corn breeders regard as ideal—the husk closing tightly about the tip of the ear and extending several inches beyond it—the weevil can do no damage. Though any number of the insects may be present on the outside of the husk, they can not penetrate to the grain. There is, however, possibility of injury by earworms and other insects, through which the weevils will be afforded entry to some of even the ears with ideal husks.

Every Farmer Needs a Fumigatorium

Even with the most careful selection of seed it will never come about that all the ears will be thoroughly protected by the husk. Some will have short, open, or injured husks through which the weevil can gain entrance. In storing the corn the department recommends that the poorly protected ears be thrown into a separate pile and husked before storing, then fumigated.

It is pointed out that many progressive farmers have adopted the practice of husking and fumigating all corn, regardless of husk protection. While the department recognizes this as the safest practice, it does not recommend it to farmers to the exclusion of other methods. What it does unqualifiedly recommend is that every farmer have some sort of fumigatorium, in which he can fumigate his corn when the need arises. If he has a gas-tight crib, so much the better. But if he has not a gas-tight crib, he can make out with a bin or box or barrel, any receptacle that can be rendered gas-tight for the fumigation of quantities of corn, large or small.

Another cultural method recommended is the planting of trap rows of early ma-

turing varieties, and these should be planted in the portion of the field nearest the woods, if a woods is near. The weevil will infest corn in the field at whatever time it begins to mature. It frequently happens, however, that if there is a small patch of early corn, practically all the weevils in that immediate area will collect on it and the later corn will not be seriously molested. This early corn used for trap purposes should be gathered upon maturity, and either immediately fed or stored and fumigated.

Gather Up All Bad Ears

Cleanliness both in the field and in the crib or bin is another important point. No nubbins and inferior ears should be left in the field. As feed they may not be worth gathering, but if left in the field they furnish a protection for weevils during the winter, from which they emerge in the spring to attack the succeeding crop. The same is true of scattered grains left in crib or bin.

All of these things are pointed out as material aids, but insistence is made that the only certain means of eliminating weevils is to place the corn in a gas-tight container of some kind and pour carbon disulphid over the top of it. The final word of the department on the subject is: "You can save your corn if you will exercise your own ingenuity and call upon your county agent to help you. He is there for that purpose and can pay for himself a hundred times over if you will make use of him."

Eating Too Many Oak Leaves Sickens Cattle, Kills Some; Spring Danger Season

Belief among many stockmen in the grazing regions of the West that cattle were poisoned by oak leaves caused specialists of the United States Department of Agriculture to undertake experiments in 1915, the results of which have just been published in Bulletin 767, "Oak-Leaf Poisoning of Domestic Animals." It has been found that the continuous feeding of oak leaves produces sickness of cattle, which frequently proves fatal. In order to cause sickness, however, oak leaves must make up a large percentage of the ration. If eaten with other feed, the animals are not injured. It was found experimentally that as small a quantity of alfalfa hay as 3 pounds daily, fed in connection with oak leaves, prevented poisoning. Most poisoning cases occur in the spring, because at that time there is a scarcity of other forage on the range.

Refuse Food but Want Water

A symptom of the disease, although not always the first one to be noticed by the stockmen, is pronounced constipation. The affected animal appears gaunt, its coat is rough, and its nose becomes dry and cracked. The attitude, both standing and walking, is peculiar; the head is extended forward and the animal shows depression, discomfort, and sometimes evidence of pain. The animal grows rapidly weaker and may die at any time from a few days to a few weeks or more. As a rule, affected animals lose their appetites at an early stage of the disease. They refuse food but have a craving for water.

Observations on the range and experimental feeding both show that some cattle may eat oak leaves for a long time with no definite bad effects, and some will even eat them exclusively with no harm. Generally speaking, those that are injured show the results only after eating a considerable quantity through a rather prolonged period. Observations on the shinnery oak show that symptoms resulted after the animals had been feeding from 16 to 35 days.

Judging from investigations thus far made, the specialists believe that oak-brush ranges can be used for grazing during the summer, not only with no harm to cattle but with positive benefit. To make certain that there is no loss from oak poisoning in early spring, when other forage is not available, it is important that an examination of the condition of the range be made before the cattle are turned upon it. There is no fixed date when cattle may be turned on range with safety, but if grass has gotten a good start there is little danger of oak poisoning.

PRICES RECEIVED AND PAID BY FARMERS BOTH HIGHER

While farmers are getting higher prices for the products they sell than they received in 1914 or at the beginning of the war, they are also paying higher prices for the things they buy, and it is of special concern to them to know just how they have fared in the general price movement of things sold in relation to that of things bought. This comparison is made possible by a recent investigation of the Bureau of Crop Estimates, United States Department of Agriculture.

In 1915 farmers received 3 per cent less than in 1914 for crops and live stock in their composite price, but they paid 9 per cent more in the composite price of the many articles that they bought. The list of articles bought used for this purpose contains 85 items of textiles and garments, lumber, wood products, agricultural implements and machinery, metal products, coal, petroleum products, foods, fertilizers, household furnishings, and other farm and family supplies. Relative loss in the second year of the war also was suffered by farmers. What they sold in crops and live stock advanced in joint price, it is true, but only by 12 per cent, while what they bought advanced 21 per cent.

In the next year, 1917, the relative character of these price movements was reversed, and the farmer faced prosperity instead of disaster, since the price that he received for crops and live stock gained 74 per cent upon 1914, while he paid 49 per cent more in the composite price of his purchases. War time is a period of rapid changes in prices and of sudden and often of painful maladjustments. Although the farmer lost ground in 1915 and 1916 in comparison with 1914, and regained the lost ground in 1917 and gained much more, he lost his relative lead in 1918 and found himself where he started in 1914 in the comparison of price of crops and live stock with that of things bought. The advance of price received in 1918 above 1914 was 97 per cent, and that of price paid was 96 per cent, or substantially the same.

Failure to utilize the large area of grass along our roads, lanes, and fence rows is a great waste that can well be stopped. Sheep would utilize this waste and remove one of the greatest breeding places of injurious farm insects. The lower leaves of corn plants which usually go to waste, as well as the cutover grain and hay fields, also offer considerable feed to farm flocks.

Farmers throughout the United States paid for mowers in 1918 prices that were 72 per cent above those of 1914, when the war began, and similarly above the former prices for other articles as follows: Harrows, 126 per cent; plows, 90 per cent; tedders, 81 per cent; axes, 93 per cent; churns, 76 per cent; corn knives, 97 per cent; cream separators, 50 per cent; hoes, 78 per cent; 10-gallon milk cans, 133 per cent; milk pails, 104 per cent; pitchforks, 85 per cent; scythes, 60 per cent; shovels, 92 per cent. So reports the Bureau of Crop Estimates.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Peach Crop in Good Condition.

The condition about April 1 of the commercial peach crop was 84 per cent of normal compared to the final percentage last year of 52.4, according to the Bureau of Crop Estimates of the United States Department of Agriculture. No quantity estimates were given, but the bureau, assuming that adverse conditions do not affect the crop later, said that the April 1 condition report indicates that the 1919 peach crop may possibly exceed the very light crop of 20,546,000 bushels in 1918 by as much as 40 per cent, and may equal, if not exceed, the 28,901,000-bushel crop of 1917. Conditions generally throughout the peach regions are excellent, says the bureau, but emphasis is placed on the temporary nature of early peach reports.

Market Reports in Italian.

Cæsar used to wait days to hear from the outposts of his empire, but to-day the descendants of his legions who plow the sunny fields near Hammond, La., get daily market news on their strawberries from places thousands of miles away. This news comes over wires and is issued in Italian, as well as in English, by the local office of the Bureau of Markets of the United States Department of Agriculture.

The daily reports on "fragole"—otherwise strawberries—tell the grower what different cities are thinking about strawberries, what they are paying, and how many they have on hand. Thus New York City conditions are given:

"Domanda moderata—2 vagoni della Florida—Qualita' ordinaria—Della frutta e' acerba. Si nende da 35a45 cents il quart. Frutta buona arrivata in piccoli frigoriferi (pony) da 50a75 cents il quart."

Information from shipping points is also included in the report, such as the number of shipments and the prices paid to growers—all in Italian. On the other side of the single sheet report the same information is given in English, so that the report serves to teach English and thus help in the work of Americanization.

Selecting Superior Spuds.

To select strains of potatoes which are best adapted for commercial production, the United States Department of Agriculture and cooperating State agencies are conducting extensive experiments in seed improvement. Trials are being made in Wisconsin, Minnesota, Iowa, Oregon, Washington, Maine, Louisiana, Texas, Oklahoma, and Arkansas. Several strains of the leading commercial varieties now grown in the North are under test, the purpose being to study them carefully under actual growing and harvest conditions in the field, and to select the best strain of seed of each commercial variety. The following year each strain will be grown on a larger scale. As the supply of seed stock permits, the seed is to be distributed among growers and seedsmen, and in this way is to be gradually popularized and disseminated. This investigation will be of country-wide significance in improving the future stocks of seed potatoes.

More Boys Than Girls in Bread Making.

Bread clubs conducted by the extension specialists of the United States Department of Agriculture and the State agricultural colleges, in Massachusetts as well as in every other State, are popular projects for boys as well as girls. From the number enrolled in these clubs apparently the young people realize how necessary good bread is for health and enjoyment. Last year 18,583 young people in the boys' and girls' clubs learned the art of making bread. At Salem, Mass., 78 applied for membership in the bread-making club, and, strange as it may seem, more boys than girls applied. As a consequence two classes are being conducted for the boys and one for the girls. Sixty hours of work, with a written report and an exhibit at the end of the contest, which closes April 15, are required. Besides bread making the boys and girls are taught all kinds of household tasks which can be properly done by boys and girls from 10 to 18. Every member of the club who completes the course satisfactorily will receive a club achievement pin.

Reports Beet-Sugar Crop of 1918–19.

The beet-sugar output of the United States for the 1918–19 season, which has just closed, was 764,867 short tons, or 1,529,734,000 pounds. This total is from the final reports made by factories to the Bureau of Crop Estimates, United States Department of Agriculture, and is almost the same as last year (1917–18), when 765,207 tons were produced. The beet-sugar production of leading States in 1918–19 was: Colorado, 191,880 tons; Michigan, 132,092; California, 122,795; Utah, 105,794; Nebraska, 63,494; Idaho, 44,682; Ohio, 35,476; Wisconsin, 13,358; other States, 55,297 tons.

The beets from which this sugar was made, the crop grown in 1918, were harvested from 593,887 acres and amounted to 5,890,227 tons, valued at $58,908,000. In 1917 there were 664,797 acres harvested, yielding 5,980,377 tons of beets, valued at $44,192,000.

About Canned Tomatoes Held by Army.

Rumors to the effect that prices for tomatoes at canneries will be lower this year because canned tomatoes held by the Government will be thrown on the market are said to be current in some producing sections. The War Department has just announced an increase in the amount of canned tomatoes issued as a part of the Army ration and has added the following canned vegetables to the regular ration: Peas, string beans, corn, pumpkin, and squash. In this connection officials of the Quartermaster General's Office have stated that these changes in the rations of canned vegetables will entirely dispose of the stocks held by the Army and that none of these will be sold.

Sweet Potato is Second Vegetable.

The importance of sweet potatoes as a southern crop was emphasized at the sweet-potato conference held in Birmingham, Ala., recently, which was attended by representatives of the United States Department of Agriculture and horticulturists and pathologists from 13 Southern States. Had such a conference been called 10 or even 5 years ago, says one of the pathologists who attended the meeting, it is doubtful whether a quorum could have been mustered. But when it is considered that the value of the sweet potato has increased more than 80 per cent in the last 10 years, that it now ranks second in value among the vegetables in the United States, that the value of the 1917 crop reached the huge sum of $90,000,000, and that of 1918 is estimated at almost $117,000,000, it is not difficult to

understand why so much interest is being taken in this crop. The lowly potato, so long accustomed to coming to market along with the farmers' surplus eggs and chickens and other such products, is now moving in solid carloads to the markets of the North, East, and West. Only a few years ago sweet potatoes spent their winters in crude and primitive dirt banks in the open field, and under such storage conditions many of them decayed; but now they are stored in specially designed and constructed storage houses in which it is possible to regulate the temperature and ventilation in such a way that this formerly unstable and perishable product can be marketed with practically no loss at any season of the year. Every phase of planting, cultivating, harvesting, storing, and marketing this crop was discussed at the conference.

Percentage of Good Corn High in 1918.

Though the United States produced less corn in 1918 than in 1917, more of it was marketable, according to statistics recently compiled by the Bureau of Crop Estimates, United States Department of Agriculture. In 1917 there were 3,065,233,000 bushels of corn produced—the largest crop ever recorded, with the exception of that of 1912, when 3,124,746,000 bushels was the Nation's yield—but only 60 per cent, or 1,837,728,000 bushels, were classed as marketable. In 1918 this country produced 2,582,814,000 bushels of corn, of which 82.5, or 2,129,764,000 bushels, were marketable. The cause of the low percentage of marketable corn in the 1917 crop was due, the crop statisticians say, to the unfavorable season. It was necessary that year to plant late in the spring, and the early frosts prevented much of the crop from maturing properly. Early fall frosts caused a loss to the corn crop as far south as Kentucky during 1917.

Extension Schools for Beekeepers.

The second of a series of extension schools for beekeepers was held recently at Ithaca, N. Y., by bee specialists of the United States Department of Agriculture. The first school was held in California. Three more are to be held in April, in Indiana, Iowa, and Minnesota, respectively. These schools, which continue for one week and consist of lectures on various phases of beekeeping, are designed especially for the commercial beekeeper rather than the man who keeps a few hives as a side line, the policy being to make better beekeepers rather than to increase the number of beginners. This, the specialists believe, is the best way to increase the Nation's supply of honey.

In New York State there were 12 county beekeepers' associations, and through the efforts of the extension specialists 15 more were organized. The school brought many of the members of these new associations together. At one session of the school those present were asked to give the number of colonies each owned, and the number of pounds of honey produced. Ninety-two reports showed an average of 111 colonies for each person, with a total of 672,542 pounds, an average of 6,058 pounds for each colony. The New York State Department of Agriculture cooperated with the Federal beemen, and they were so pleased with the success of the school that they guaranteed an attendance of several hundred people if a similar school should be held next year.

Larger Acreage in Crops in 1918.

When this country entered the war Uncle Sam called for an increased production of food, urging the farmers of the country to plant every available acre. The food producers of the Nation responded by planting over 11,000,000 acres more than had been planted during the year previous. The acreage of all crops during 1918, according to figures just tabulated by the Bureau of Crop Estimates, United States Department of Agriculture, was 367,738,000, as compared to 356,341,000 acres planted in 1917 and 344,793,000 acres planted in 1916. These figures are based on the acreages of corn, wheat, oats, barley, rye, buckwheat, potatoes, sweet potatoes, tobacco, flax, rice, hay, cotton, peanuts, kafirs, beans, broom corn, hops, and cranberries, which crops comprised 96.6 per cent of all the crops grown in this country in 1909.

Sweepstakes Honors for Three Years.

For the third time Wallace Cook, of New Castle County, Del., has won State club championship honors. Last year he was the grand-champion club member of Delaware. In 1916 as club champion, at 15 years of age, he won a free trip to the International Dairy Exposition at Springfield, Mass. The following year he cleared $183.21 from his corn-club acre, and at the State corn show, in competition with the best corn growers of Delaware, won the sweepstakes prize for the best 10-ear and 50-ear corn exhibits. Last year he applied his club earnings of the previous year to purchase a pure-bred Holstein heifer and a pure-bred Holstein calf, and at the State fair last fall he was awarded a Holstein-Friesian championship prize for the best club calf on exhibition and was declared State champion of the boys' and girls' club judging contest. Last fall, also, his corn was given grand-championship prizes at the local county fair.

Infertile-Egg Campaign Begins.

While poultry raisers in the North are still busy in the midst of hatching season, the infertile-egg campaign has been begun in Florida by poultry extension men of the United States Department of Agriculture, working in cooperation with State agricultural colleges. The southern campaign began with the close of the hatching season and will develop into a nation-wide movement. Just as soon as the last egg is required for incubation the rooster should be yarded apart from the hens or killed. Do not be careless about this, the specialists say, for eggs are hard to keep in hot weather and infertile eggs keep longer.

Rent Pastures at Record Prices.

Cattle pastures in Kansas this season were rented at new record prices, a few instances of $20 a head a season having been recorded, and many contracts were made at from $13 to $18 a head, while none were obtainable below $10, according to reports to the United States Department of Agriculture. Even at these prices pastures were sought early in the season by men who wanted to rent grazing land, but now the demand has eased up, as most of the desirable land has been leased and the owners find it necessary to skirmish for cattle to fill those remaining. Ranchmen in Texas are in better position this season to handle their cattle at home, but because of the prolonged drought in that State much grass was killed out, which means that for another season at least cattlemen from Texas must seek pastures in Kansas and surrounding territory. It is expected that more than a normal number of cattle will be pastured in Kansas this season because of the numerous rains there and the large number of cattle wintered in Oklahoma, which will be shipped into Kansas. Most of the cattle usually go on grass soon after April 15 and many remain on pasture as late as October 15, although ordinarily most of them are marketed by October 1.

Demand for Club Canned Products.

Some of the canning club girls organized by the home demonstration agents of the United States Department of Agriculture and the State agricultural colleges utilize their canning knowledge only to provide the family table with plenty of fruit and vegetables. The

larger number, however, not only practice what they have learned for the benefit of their families, but increase their incomes by marketing the surplus. The agents who have helped during the canning later assist in the marketing of the products. The uniform excellence of the 4-H brand makes it a comparatively easy task to keep a customer once he has used the products. The agent in Jasper County, Miss., has found a ready sale with a lumber company for the canned fruits and vegetables her girls wish to sell. One day in March $175 worth were weighed, sold, and shipped to this company. The demand is constant, because the buyer reports that the club girls' canned goods are the best he has found on the market.

FARMERS' HELP IS ESSENTIAL IN NATIONAL THRIFT CAMPAIGN

(*Continued from page 1.*)

"Through the schools of the country the children are being taught in arithmetic and civics and English the lessons of thrift. The ministers of the Nation have been enlisted to carry the message to churches. Through leaders of manufacturing enterprises and through commercial associations the army of industrial workers is being approached.

Farming Backbone of Nation

"There is no more important element in the campaign than the agricultural interests. Agriculture is the backbone of the Nation's life. The agriculturalist is the steadying force in our complex civilization. In seeking the proper approach to our great agricultural population the Savings Division naturally turned to the Department of Agriculture. This department is the pioneer in preaching thrift in the United States. Years before the Savings Division, or the Food Administration, or any other of the conserving agencies was thought of, the Department of Agriculture was quietly and efficiently preaching the gospel in every corner of the land. We are deeply grateful that through the States Relations Service we have been allowed access to the State directors of extension, and through them to the county agents, the home demonstrators, and all the rest of that great army which directs the field work of the Department. It will be our mission to have our district, State, and local directors get in touch with these various agricultural officials, cooperating with them wherever and to the extent that these skilled people may suggest. We can not hope to suggest much to those who, as I have said, are the pioneers in thrift.

Government Investment Sound

"Perhaps all we can add to the lessons they have taught is the suggestion of sound investment. The farmer has eliminated waste to a much greater degree than has the city dweller; he has saved more consistently and intelligently, but he has not always had at hand the opportunity for gilt-edge investment, particularly in small amounts. The war savings stamp fills this need perfectly, and it is the war savings stamps and other Government investment that we wish the agents of the Department of Agriculture to explain to the people in the agricultural districts. The State war savings directors will furnish the directors of extension with the necessary printed matter as a background of this instruction. Everyone who teaches this lesson of thrift is performing a signal service to his Government. Everyone who is converted to the practice of careful buying, elimination of waste, and sound investment, is a bulwark against anarchy and revolution in this country; is an added asset to the business strength of the community in which he lives; is a happier, freer man than he could be otherwise.

"During the war the people were constantly urged to help the Government. This is not the slogan of the thrift campaign. Through this campaign the Government will help the people. Through the campaign will the victory be perpetuated and the cost justified. With the splendid cooperation of the Agricultural Department we are confident that the campaign will be an unqualified success."

HOW TO COMBAT CURCULIO AND GRAPE ROOT-BORER

In many localities in the eastern part of the United States the grape curculio, which feeds upon the leaves from spring to frost, is the most destructive insect attacking this fruit. It may be practically unknown in some places, but in near-by districts may appear in such destructive numbers as to destroy each year from 35 to 100 per cent of fruit on all grapevines that do not receive protection.

Another insect pest that is a menace to many grape growers in the eastern part of the country is the root-borer, which burrows into the roots and causes injury similar to severe root pruning. These two pests are described, and control methods given, in Bulletin 730 of the United States Department of Agriculture. The curculio can be successfully controlled by arsenical sprays, the bulletin states, but the only method of combating the borer now known is thorough cultivation, which destroys the larvæ and pupæ in the cocoons, and the practice of such cultural methods as will induce vigorous and rapid growth of healthy vines.

The adult curculio is small and inconspicuous, and a grape grower will frequently lose within a short time an entire crop of fruit without being able to determine the nature of the enemy. The grapes will suddenly become wormy and will be ruined. At about the time Concord grapevines bloom the curculio beetles emerge from hibernation and appear upon the leaves. The pest feeds on the upper surface of the leaves throughout the season. Ants are their natural enemies, and some forms of ground-dwelling spiders feed upon them. A number of parasites aid in their destruction.

In several cases practically complete freedom from attack has been obtained by applying two sprays of lead arsenate, 3 pounds of the paste form to 50 gallons of water, the first just after the blossoms have dropped and the second three or four weeks later. It is possible to destroy the pest by spraying at any time during the growing season of fruit or in the fall, after the fruit has been gathered, but spring is the best time, for at this season other insects and fungous diseases are to be dealt with, and the sprays can be applied for combined results. Cultivation under infested vines destroys many curculios by breaking the cocoons and exposing the pupæ.

Like the curculio, the grape root-borer is inconspicuous in all of its stages. The borers rarely kill the vines, but cause infested plants to linger for years, making meager annual growth and bearing reduced crops of fruit, the owner often being unaware of the cause. The newly hatched larvæ feed entirely on the roots, both large and small roots being attacked. The borer feeds over so wide an area that digging for the pest as a practicable method of destruction is out of the question, and even soil fumigants are, for the same reason, of doubtful value. The use of fertilizers and the application of other cultural methods which promote rapid, vigorous growth, offsetting the root pruning caused by the borer, are the best-known methods of controlling the pest.

It is common knowledge that the higher the temperature the quicker meat will spoil, but the family's supplies are not absolutely at the mercy of the thermometer. Ice and cleanliness are two great weapons of defense.

Developing Burley Tobacco Resistant To Root-Rot; New Strains Being Tested

If two varieties of tobacco, Connecticut Havana and White Burley, for instance, are planted side by side on ground which has just grown two or three crops of burley, the Havana seed in most instances will produce from two times to one hundred times as much as the burley. If, however, these two varieties are planted where tobacco has not been grown for several years and on soil which is not "tobacco sick" the burley will produce as large a crop, acre for acre, as the Connecticut Havana. The cause of the low yield in the first case is root-rot, a disease the Connecticut Havana is able to resist but to which the burley is susceptible.

For several years specialists of the United States Department of Agriculture have been working to develop by selection a type of burley as resistant as some of the cigar varieties but which will still possess the yield and quality of burley. During the past three years these strains have been tested in Kentucky under the direction of the department specialists, who have prepared a bulletin (No. 765) on strains of White Burley tobacco resistant to root-rot. In these tests the resistant strains have made average normal growth each year, while ordinary burley produced practically nothing.

The importance of this disease is shown by the fact that recent careful observations over a considerable part of the tobacco-growing section of the United States have shown an annual damage of millions of dollars. The loss in Kentucky alone is believed to exceed easily an average of $2,000,000 annually, according to the bulletin.

Fungus Causes Disease

Root rot is caused by a fungus which lives as a parasite on the roots of the plant. This fungus can grow into the roots and feed on their tissues, which results in decay. It can live on dead organic matter in the soil, but in the absence of tobacco plants it gradually dies out, though this may require from 5 to 10 years or more. The disease spreads much in the same way as other diseases of plants and animals.

The most characteristic symptom of root rot is a decay of the root system, resulting in a stunting of the plants. Curiously enough, root rot rarely kills the plant in the field. Aside from becoming stunted and yellow, the diseased plants may show wilting even in very moist soils on days when tobacco in healthy soil and other crops show no wilting. The depleted root system is not able to take up water as fast as the leaves use it.

All tobacco growers have seen fields in which the crop has made a very uneven growth, although all the plants had an equal chance to start and develop. Those plants which grow rapidly and stand out distinctly from their neighbors may be resistant to the disease. Seeds from a large number of such plants have been saved by the department's specialists and grown in separate rows on sick soils the following year. A few of these selections have shown distinct resistance when compared with ordinary burley, and when propagated and tested several years under varied conditions have continued to maintain their original degree of resistance.

Testing Preferred Types

The resistant strains thus far produced and given commercial trial are all of the drooping-leaf type and are not stand-up burleys, which many growers prefer. Encouraging results have now been secured in developing resistance in the stand-up types also, and it is expected that these strains will soon be ready for testing commercially. Several trials have shown that the resistant burleys are practically equal to the ordinary burley varieties in respect to color and texture of the cured product.

Until stand-up burleys of unquestionable perfection in quality are obtained, the bulletin says, growers may profitably plant the resistant strains of the drooping-leaved type where it is desired to utilize tobacco-sick soils. Where the land has had a long rest from tobacco, the resistant type is not recommended, for it will not show improvement over ordinary burley on healthy soil. The value of these strains lies in their resistance to root rot; hence there would be no purpose in growing them on land free from this disease.

TICK-FREE CATTLE BETTER ABLE TO RESIST WEATHER

Since the cattle-fever tick has been nearly completely driven from Harris County, Tex., winter losses of cattle have dwindled from many animals to a comparatively insignificant number there. This is told in reports to the Bureau of Animal Industry, United States Department of Agriculture, which say that a new era is beginning for the cattle industry in Harris County and vicinity, and that there is now little doubt that live-stock raising and dairying in that territory will become more profitable industries.

Oscar Daniels, an experienced cattleman of Satsuma, Harris County, carried 1,000 head of cattle through the past winter without a single loss. Under the same feeding conditions in former years many cattle died. Mr. Daniels attributes his success in avoiding loss to the fact that he dipped his cattle at regular two-week intervals last season in the arsenical solution prescribed by the Bureau of Animal Industry, and his herd entered the winter season free of ticks and consequently in good condition. The reason ticks make cattle easy prey for winter is that the ticks suck the blood of the animals and reduce their vitality to such an extent that many of them have not sufficient stamina to live until spring.

FARM LABOR IN CANADA

The average wage rates paid to farm labor in Canada in 1918 were the highest on record. During the summer the average rate a month, including board, was $70 for men, a gain of $6 in one year; and $38 for women, a gain of $4. For the whole year 1918 the average wage rate, including board, was $617 for men and $416 for women, a gain of $6 and $62, respectively, over 1917. The average value of board per month in 1918 was $21 for men and $17 for women, against $19 and $15 in 1917.

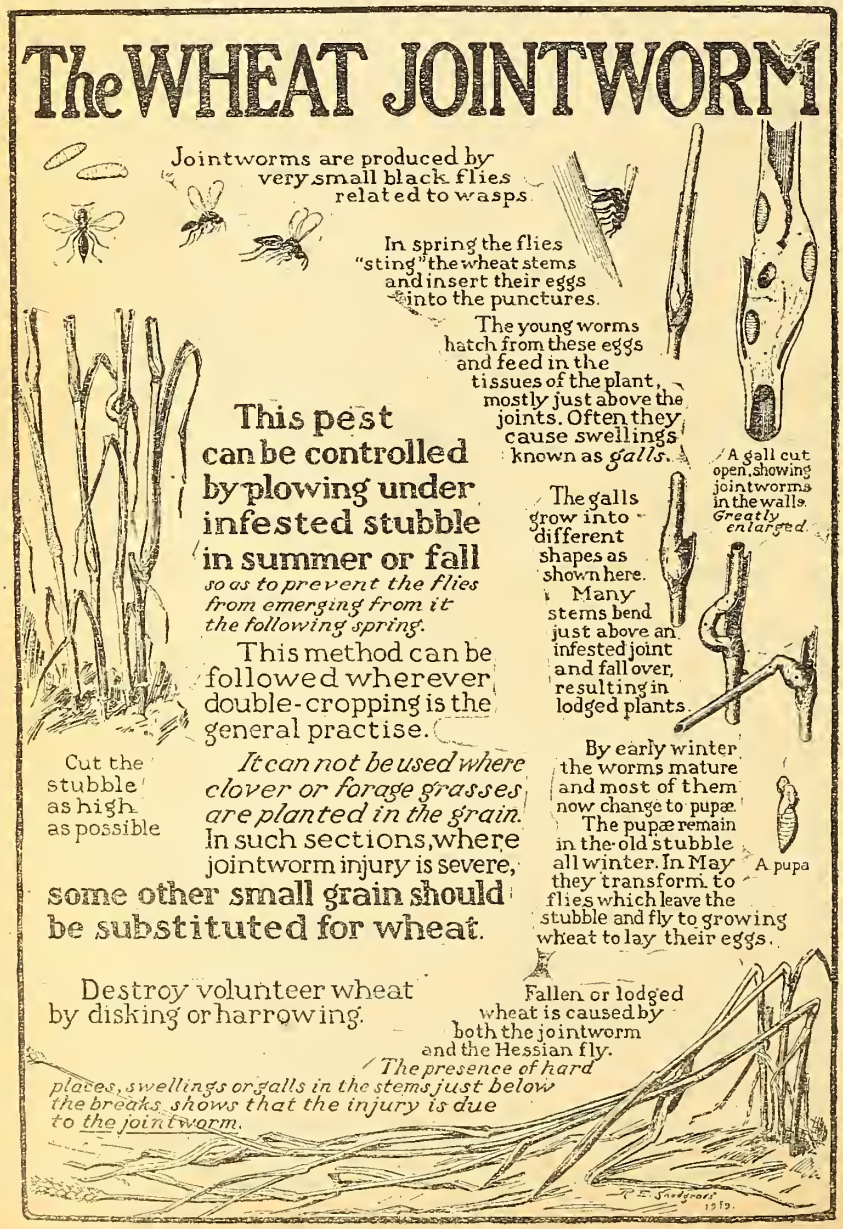
While the farmer bit off a chew of tobacco in 1918 from a plug that cost him 71 per cent more than 1914 he wore a flannel shirt that cost 130 per cent more in 1918 than in 1914; a felt hat, 70 per cent more; shoes, 76 per cent more; and a suit of clothing, 96 per cent more.

Binder twine cost the farmer 150 per cent more in 1918 than in 1914; barbed wire, 99 per cent; barrels for apples, 104 per cent; half-bushel baskets, 45 per cent; buggies, 57 per cent; double wagons, 71 per cent; harness, 66 per cent; horse blankets, 96 per cent; Paris green, 123 per cent; grain sacks, 182 per cent; nails, 87 per cent; wire fence, 92 per cent. These are averages for the United States.

Wheat Jointworm Is Doing More Damage; Plowing Under Infested Stubble Helps

For three years the wheat jointworm has been unusually injurious in Michigan, Indiana, Ohio, and eastward to the Atlantic Ocean. This pest is generally injurious throughout the northern half of the wheat belt east of the Mississippi River, and the damage resulting from it appears to be increasing. The United States Department of Agriculture is distributing a poster illustrating the injury done by the jointworm and urging control measures, as shown in the accompanying illustration.

The jointworm is the larva of a very small, black, wasplike fly. It feeds in the tissues of the plant just above the joints, causing galls and later breaking down of the straw. The injury done by the jointworm is manifested in much the same way as is Hessian fly injury to older wheat—in fallen or lodged wheat. The principal control measure—plowing under of infested stubble in summer or fall—is applicable also to control of the Hessian fly.



FARMERS GET MORE—PAY MORE

If any one has the impression that what the farmer received for his crops in 1918 was largely "velvet," he should be informed that, in the enormous advance in prices paid by the farmer for nearly everything he bought, his commercial fertilizer cost him 70 per cent more per ton than he paid in 1914, the bonemeal price was 73 per cent higher, and lime 77 per cent higher, and that the dung fork was 74 per cent more costly and the manure spreader 67 per cent. Gasoline for the automobile, auto truck, and engine cost the farmer 67 per cent more in 1918 than it did four years before; 1-inch lumber was 74 per cent higher; shingles, 49 per cent; paint, 104 per cent; linseed oil, 165 per cent; coal, 43 per cent; hemp rope, 148 per cent; and so on throughout the long list of things bought by the farmer.

These percentages of increase are based on average prices paid by farmers throughout the United States and are figured by the Bureau of Crop Estimates, United States Department of Agriculture.

Live-Stock Price Lags Behind in Upward Trend of Farm Crops

Live-stock price received by farmers has not kept pace with the advance of crop price since the beginning of the war. This fact has been established by a recent investigation by the Bureau of Crop Estimates, United States Department of Agriculture, and it provides a specific explanation for the general complaint of the live-stock farmers that they have fallen behind in the procession of wartime prices of farm products. A tendency to recover ground relatively lost by live stock from 1914 to 1917 appeared, however, in 1918.

From 1914 to 1915 crop price advanced 2 per cent and live-stock price declined 8 per cent, and by 1916 crops had gained 17 per cent in price and the live-stock price had joined the upward movement and gained 7 per cent on 1914.

A much greater disparity between the two classes of prices developed in 1917, when crop price gained 88 per cent on 1914 and live stock gained 61 per cent. The disparity diminished in 1918, in which year crop price rose to 106 per cent above 1914 and live-stock price to 88 per cent above.

The difference between the two relative positions of the crop price and the live-stock price with reference to 1914 was 10 in 1915 and in 1916, 27 in 1917, and 18 in 1918, so that in the last year recovery of lost relative position was tending in favor of the live-stock price, but there was still a wide gap between the two.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI APRIL 30, 1919 No 39.

NITRATE FERTILIZES FARMS INSTEAD OF DESTROYING FOE

War Munition Converted to Peaceful Use Following Armistice

Farmers Save About $1,500,000 by Buying 151,000 Tons from Government; How it is Distributed to Purchasers

More than a hundred thousand tons of nitrate, originally produced to help in blowing the German armies off the map of Belgium and France, this year will be put to the more peaceful work of increasing the fertility of American farming soil. After the signing of the armistice the War Department released to the Department of Agriculture 111,000 tons of nitrate at a salvage price. To this quantity is added 40,000 tons received from Chile by the Department of Agriculture too late for distribution last year, so that 151,000 tons will be sold by the Department of Agriculture to farmers under the authority of the food-control act, which provided for its purchase and sale by the Government to farmers at cost.

More Than a Million Saved

Through this arrangement it is estimated that 100,000 farmers will save about $1,500,000, according to the open-market price and the $81 a ton f. o. b. shipping point charged by the Government. Farmers have taken up the full 151,000 tons in orders ranging from a bag of 200 pounds to an order for 300 tons.

The price last year was $75.50 a ton, f. o. b. shipping points, located at six Atlantic and Gulf ports. The Department of Agriculture last year arranged for the shipment of 120,000 tons from Chile, but shortage of shipping space kept the quantity transported in time for use last year down to about 75,000 tons. This year's price was announced early in 1919, and application blanks were sent to county agricultural agents for distribution to farmers.

Harbor strikes at Charleston, S. C., and New York City have seriously interfered with shipments from these points, but a recent arrangement for lightering nitrate destined for New England and New York points from the Erie Basin in Brooklyn was made with the union in New York City, and the nitrate bound for these points is to be moved at once.

Shipments are now being made from 21 storage points, and to date shipping instructions have been sent from Washington to forwarding agents covering about 125,000 tons. Records show that about 110,000 tons have actually been shipped, and it is expected that the entire 151,000 tons ordered by farmers will be shipped before the end of May of this year.

How Nitrate is Handled

The Bureau of Markets, which is in charge of the nitrate distribution for the Department of Agriculture, has appointed at each storage point a forwarding agent and has charged him with the duty of even-weighting, reconditioning, loading, and shipping the nitrate on orders received from Washington. These representatives receive from the Department of Agriculture $1 a year plus the regular commercial rates for services rendered.

Where county nitrate requirements are very light, farmers have been requested to forward cashiers' checks or New York drafts in payment for nitrate at the time of filing their applications, after which the nitrate is shipped direct to them. Where county requirements are comparatively heavy, Federal nitrate distributors have been appointed by the bureau, on the recommendation of county agricultural agents, to act as consignees and distributors for all nitrate shipped to such counties. These Federal nitrate distributors collect money from applicants, send shipping instructions to Washington, receive nitrate and distribute it to farmers. Shipments are forwarded to these distributors on order notify bills of lading, with sight draft attached. The bureau has designated about 500 Federal nitrate distributors.

LUMBER AND FOREST POLICY PROPOSED TO SAVE TIMBER

Public Aid to Industry, With Protective Measures, Recommended

Chief of Forest Service Tells Lumber Congress That Renewal of Woodlands is Vital to Public and Trade

A comprehensive program of public aid to the lumber industry, combined with the enforcement of measures to protect the public interest in future timber supplies, was advocated by Col. Henry S. Graves, Chief of the Forest Service, United States Department of Agriculture, who spoke before the American Lumber Congress at Chicago, April 16.

Lumbermen, said Col. Graves, are studying the needs of the industry and are doing many constructive things to increase its efficiency. Nevertheless, the great fundamental problems are not being solved. The industry is still essentially unstable, labor conditions are unsatisfactory, forest depletion is of increasing seriousness, and our public forest policy is incomplete.

Forest Renewal Important

It was pointed out that the lumber industry has been seeking governmental aid along various lines, to help it get on a more stable basis through curtailment of production, relief from present methods of taxation, price standards, and in other ways. In seeking such help, however, the industry has failed to recognize any obligation to provide for forest replacement after cutting. While the injury and loss that accompany demoralized industrial conditions are necessarily of public concern, the question of forest renewal and growth on cut-over lands now left unproductive is still more important.

Forest renewal is of vital interest, Col. Graves declared, not only to the public but also to the owners of timberlands.

They Gave all Forever. You are Asked to Lend for a While.

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"We have enough nonagricultural land," he said, "to produce for all time lumber in abundance, for ourselves and for export. The public must share with the owners both the responsibility and the burden of securing the essential objectives. Those sought by the public are fundamentally the same as those needed for the permanent well being of the lumber industry. It is necessary to plan a program broad enough to accomplish them.

"I am ready to advocate a policy more far reaching in all respects than has generally been offered. I would afford whatever public assistance is needed to make possible the conservative handling of our forests, and I would then make fire protection, conservative production of lumber, and right methods of removal a matter of requirement, with such public direction and control as is necessary to realize the aims desired by the public."

Must Safeguard Public Interest

A comprehensive policy of forest development, said Col. Graves, would make for permanent mills, place timber on the market only as it is needed, protect the present resource, classify the lands, encourage agriculture, and secure tree-growth on nonagricultural lands. Timberlands would be placed on a sound basis of management instead of a speculative basis, and industrial plants given a permanent life. The resulting labor conditions would attract men who want to settle down instead of migrate. The public would have timber in abundance, at reasonable prices. It could afford to give its financial credit and authority if its interests are safeguarded by adequate control in public hands.

"We have the problems to solve," the speaker concluded, "and we can not continue to ignore them. Public demand for action is increasingly urgent. It should be in accordance with broad constructive plans rather than by piecemeal legislation by different States. I am asking for cooperation in laying the ground work for a national policy, and have initiated a series of conferences to this end. I hope that lumbermen will concur in the need of such a movement, and will join in the undertaking to work out a constructive program."

Certain kinds of food—creamed chicken, or custard, or warm vegetables, for example—are excellent culture mediums for bacteria which may have been introduced into them by accident. For this reason it is a safe rule to have as short a time as possible intervene between the preparation of food and its consumption.

PLANT QUARANTINE SUSTAINED BY SECRETARY AFTER APPEAL

Scientific in Origin, Sound in Principle, Decision Declares

Consideration Given to Briefs of Protesting Florists and Nurserymen; All Interested Given Opportunity to Be Heard

The quarantine governing the importation of nursery stock and other plants and seeds into the United States is scientific in origin and purpose and sound in principle, declares Secretary Houston after careful personal consideration. Its enforcement, he says, will make for the safety of the plant, fruit, and forest interests of the country with as little injury to private agencies and individuals as is compatible with the purpose of the quarantine.

This judgment of the Secretary of Agriculture was announced after the briefs submitted to him by a protesting committee of florists' and nurserymen's organizations, together with all department records and correspondence in relation to the hearings before the Federal Horticultural Board, were reviewed by Thomas G. Shearman, attorney in charge of the investigation of appeals from decisions of the Forest Service. Mr. Shearman was instructed to include in his inquiry every phase of the subject, particularly all criticisms of the quarantine from whatever source. After studying the report of this inquiry, together with all the other records, the Secretary reached his decision.

Hearing Given to All

Attention is called to the care exercised to make sure that all interested persons had the opportunity of being heard. The Federal Horticultural Board gave 60 days' notice of the original hearing. After the hearing, the whole matter was again taken under advisement by the department and investigated for a period of three months. Then the form of the proposed quarantine was sent out in such ways that all interested parties had the opportunity of studying it. Nearly two months later another conference was held. The suggestions made at that conference were submitted to the experts of the department and given careful consideration before the quarantine was promulgated.

Statement by Secretary

After stating these facts and reviewing the various criticisms that have been made, Secretary Houston says:

"As the result of my consideration of this entire matter, it appears to me that the department had to face and solve this problem: Given the fact, on the one hand, that any importation of plants and plant products is necessarily fraught with danger from disease or pests, and the further fact, on the other hand, that entire exclusion would be unwise at this time, how could a general quarantine be drawn, so as to reduce to the lowest terms, both the disease and pest dangers involved in importation and the injury involved in restriction.

Reliable Information Used

"In working out the solution of this problem, two considerations have been kept constantly in mind with reference to the different classes of plants and plant products to be covered by the quarantine order: (1) The necessity or importance of the particular plant, and (2) the danger arising out of its importation. The quarantine, as finally formulated, has been the result of bringing to bear upon these two considerations such technical and scientific information as could be obtained from sources believed to be reliable.

"Necessarily, there are all kinds of gradations, both in the risk of disease or infestation, and in the importance or necessity of the various plants considered. Where the necessity is at the maximum, and the risk is toward the minimum, the quarantine will be found to be inoperative, as for instance, in the case of fruits, vegetables, and cereals for food and similar purposes, and field, vegetable, and flower seeds. When, on the other hand, the risk is at the maximum, and the necessity is at the minimum, the quarantine is found to be strict, as, for instance, in the case of plants whose roots are balled in ordinary earth.

Open to Amendment

"It is clearly my opinion that the distinctions and classes in this quarantine order have been made only after careful consideration of the best information obtainable. It is also evident that the various restrictions embodied in the order are not necessarily final; one amendment has already been issued, that of February 12, 1919, with reference to the use of sterilized soil about the roots of imported plants. It is, therefore, always possible that further convincing evidence may make other amendments necessary, not only for modifying or removing restrictions now in force, but also for extending existing restrictions or adding further prohibitions thereto.

"It is recognized that the enforcement of certain features of this quarantine order will injure some horticultural inter-

ests, not only by necessitating readjustments, but by the possible loss of some lines of profit. Such provisions, however, have been inserted only because it was believed, on satisfactory evidence, that they were necessary in order to protect the wider interests of the public at large.

"It is also recognized that some of the plants and plant products, whose importation has made them more or less popular, will become rarities until they can be produced in this country, and if, as seems likely in a few cases, this turns out to be impossible, that it will be necessary for the public to do without them or to accept a substitute which can be produced here or which can be imported with safety.

Prohibited Plants May Enter

"In any discussion of the purpose and effect of this quarantine order, the fact should not be overlooked that definite provision is made therein for the entry, in limited quantities, even of the prohibited bulbs and plants, through the Government Office of Foreign Seed and Plant Introduction. In such case, the importation would be safeguarded by the highly developed quarantine and inspection service of the department and the country could in this way gradually be supplied with new varieties and the necessary stock for propagation, without the dangers attendant upon commercial importations.

"In view of the facts and considerations set forth, it is my opinion that Plant Quarantine 37 is scientific in origin and purpose, as well as sound in principle, and that its enforcement will make for the safety of the plant, fruit, and forest interests of the country with as little injury to private agencies and individuals as is compatable therewith."

Germs which grow in food and cause illness grow very rapidly, particularly if the food is a little warm, and are not destroyed unless the food is well cooked before serving. Simply "warming up" is not enough.

If the chickens must be confined on account of bad weather, provide a good straw litter to which their grain feed may be scattered. This will give them exercise and keep them interested and healthy. When chickens that have been accustomed to free range are closely confined this frequently checks their development for the time being unless they are made contented in their new quarters. Provide green feed for them also.

"GUM-SHOE" PASTURES SHOW VALUE IN PRODUCING PORK

Tests Demonstrate That Irrigated Crops Make Good Hog Feed

Results of Investigations by Department Provide Information Lacked by Farmers in "Web-Footed" Sections

"Gum-shoe" farming for ham and bacon production does not presuppose web-footed hogs. It merely means that irrigation as practiced by some western farmers involves conservative use of moisture for production of forage crops which may be harvested directly in the fields by the porkers. Specialists of the United States Department of Agriculture, in Department Bulletin 752, report that the swine industry in the rubber-boot country has been subject to periods of expansion and depression. One cause is lack of knowledge as to the possibility of using certain irrigated field crops, and as to the value of these crops when measured in terms of pork production. If full advantage is taken of the wide range of feeds available to swine growers on irrigated lands, pork production can be conducted more extensively, and with more assurance of success.

Irrigation farmers interested in pork production have had to rely on results obtained in nonirrigated sections, and applied to localities where web-footed crops grow. This lack of definite information was especially noteworthy in the case of field crops, which in other sections of the country are pastured by hogs or hogged off. Hence, since 1912 the department has been making observations in its western irrigation projects on the utilization of irrigated field crops as hog pasture. These investigations include pasture tests with 149 lots, consisting of 3,795 hogs, pastured on alfalfa, sweet clover, corn, field peas, and milo.

Alfalfa Needs Supplementary Ration

Pasturing alfalfa with hogs has been demonstrated a satisfactory method of utilizing the forage, and one of the cheapest ways to produce pork. However, to obtain satisfactory results, the alfalfa pasture must be supplemented with some carbonaceous feed, such as a 2 per cent ration of corn, barley, milo, wheat, or shorts. Under such conditions one good acre of good alfalfa pasture will produce, with reasonable surety, about 2,500 pounds of pork a season. Exceptional gains, as high as 4,292 pounds an acre, were reported in the case of one lot of hogs pastured on alfalfa, and given a 3 per cent supplementary ration of corn. Naturally the gains on alfalfa depend on the size and quality of the crop, the character of the hogs, the method of management, and the quantity and quality of the supplementary feed. It is poor policy to try to make pork on alfalfa pasturage alone without supplementary feed.

Hogs on alfalfa pasture, supplemented with about a 2 per cent ration of corn, barley, wheat shorts, or milo, will consume from 250 to 350 pounds of grain for each hundredweight of gain. In general the grain requirement increases as the hogs get larger. The feeding values of corn, barley, shorts, and milo as supplements to alfalfa pasturage are so nearly identical that the choice among these side dishes should depend on prices, cultural adaptability, and general economic conditions. Where the grain is to be grown by the swine raiser, preference usually is given to corn, barley, and the grain sorghums, depending upon the adaptability of these crops to local conditions. An acre of good alfalfa pasture supplemented with a 2 per cent ration of grain will support 2,500 pounds of hogs during the entire growing season. The carrying capacity of alfalfa pastures increases rapidly with greater grain allowance, and it varies somewhat during the growing season with the rate of crop growth.

According to specialists of the United States Department of Agriculture, an acre of good alfalfa pasture, if supplemented with a 2 per cent ration of corn or barley, will support 6 to 8 sows and 50 to 70 sucking spring pigs for about 60 days in early summer, during which the pigs should gain from 25 to 30 pounds apiece.

Sweet Clover Often Valuable

A few tests have been conducted to try out the value of sweet clover as hog pasture, and the results have proved that this crop can not be regarded as a rival of alfalfa. However, on soils which are too wet or too salty for alfalfa the irrigation farmers find sweet clover a valuable forage crop. Rubber-boot farmers are coming to appreciate hogged-down corn and field peas as a desirable combination for pork production, in that it saves labor, produces satisfactory gains in the hogs, and adds manure to the soil. Extensive tests of "hogging corn" reported in the bulletin show gains of from 183 to 1,048 pounds an acre of corn when no supplementary feed was provided, and from 335 to 1,377 pounds an acre where the corn was supplemented with other feed. It is estimated that in these tests an average of about 450 pounds of corn was required to produce 100 pounds of gain when no supplement was used, as compared with an average of 409 pounds when the corn was not in combination

with forage, late alfalfa pasture, or rape. Alfalfa pasture is preferable as an adjunct to hogged-down corn on irrigated lands because of its cheapness, relative abundance, and reliability.

Field peas are of high feeding value for hogging purposes in the irrigated belt. Gains in live weight per acre of peas in 17 different experiments range from 250 to 949 pounds, averaging near 600 pounds. These results compare not unfavorably with those obtained by hogging corn when cost of production is considered. But in some districts where corn grows well field peas do not produce so abundantly as in cooler localities less favorable to corn. Field peas are particularly valuable for hogging off when the more common grain feeds are expensive and the swine grower is seeking a substitute.

Use of horse beans as a hog pasture in the irrigated districts is still in the experimental stage, this crop being especially susceptible to attacks of certain fungous diseases. Although grain sorghum, particularly milo, is utilized to some extent in the Southwest for hogging off, its chief value for swine production rests in its usefulness in combination with alfalfa pasture and as a finishing feed. For both these purposes, grain cracked or ground is believed to have higher feeding value than when the hogs harvest the crop and eat the whole grains.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended April 19, 1919:

Feeding Horses. Farmers' Bulletin 1030.

Fig Growing in the South Atlantic and Gulf States. Farmers' Bulletin 1031.

Care and Repair of Farm Implements. Farmers' Bulletin 1036.

Illustrated Poultry Primer. Farmers' Bulletin 1040.

Strawberry Varieties in the United States. Farmers' Bulletin 1043.

The Old and the New in Corn Culture. Yearbook Separate 776, B. P. I.

The Rediscovery of an Old Dish. Yearbook Separate 787, B. A. I.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

In a large area of the country where the Hessian fly is a destructive pest, losses in certain years could be avoided if a part of the grain crop were rye instead of wheat.

American Apples Grown to Queen's Taste Started Exports, Now Likely to Increase

Attempting to win the favor of the ladies by giving them apples may be laughed at by some people as ludicrously rustic, but it is not to be despised. It wins. Here is the proof:

Victoria was young and, though she was a queen, she was also a woman, and impressionable. Arthur Stevenson, who was then American minister to the court of St. James, gave her some very beautiful apples—"Albemarle Pippins" they were—from a Virginia orchard. So pleased was the queen that she caused the import tax on apples to be removed. From that time, exports of apples from the United States to England increased rapidly. England became, and has remained, the principal export market for American apples.

This little story has an unusual interest just now, when, following the world war, the export markets are not only to be reopened, but possibly may assume a larger importance than ever before. Commercial apple growers in the United States must meet any such increased demand without increased acreage. Apple production does not respond quickly to supply and demand. Trees require several years to come into full bearing. Little can be done toward immediately increasing the supply when an unusual demand appears.

Must Increase Plantings

Taking the United States as a whole, there has been very little planting of apple trees since 1910. Comparatively few young trees, therefore, are coming into bearing at this time. This is shown by an investigation of the commercial apple industry recently made by the United States Department of Agriculture. Indeed, the largest single commercial apple-producing section in the United States has reached its maximum production, and unless the planting rate increases a decline is to be expected.

That region is western New York, which, early in the sixties, became and has since remained the center of commercial apple production in the United States. Western New York has produced regularly about one-fourth of the normal commercial apple crop of the country. But most of the present bearing trees were planted in the late sixties and early seventies and are now nearly 50 years old. Vigor and productivity continue longer in western New York than anywhere else in the country, perhaps, yet they can not be maintained indefinitely, and the center of production may be expected to shift. Similar declines are taking place in what is known as the New England Baldwin belt, including portions of Maine, New Hampshire, Vermont, and Massachusetts, but as this has never represented more than 5 per cent of the total commercial production it is of relatively less importance.

Other Production Centers

In latter years two comparatively new commercial apple regions have come into large production—the Pacific Northwest and the Shenandoah-Cumberland region of Virginia, West Virginia, Maryland, and Pennsylvania. The former is producing now almost as many commercial apples as New York, and the latter is producing about half as many. Roughly speaking, New York, the Pacific Northwest, and the Shenandoah-Cumberland produce about five-eighths of all the commercial apples grown in the United States. The Shenandoah-Cumberland region is yet only approaching its maximum production. In the Northwest there was considerable planting of unsuitable lands, but western production is being stabilized and will continue to be an increasingly important factor in the apple industry.

Other regions of considerable commercial apple production are the Piedmont district of Virginia, the Hudson Valley, southern Ohio, western Michigan, southern and western Illinois, the Ozark Mountain region of Arkansas and Missouri, the Missouri River region of Iowa, Missouri, Kansas, and Nebraska, the Arkansas Valley region, California, and Colorado.

Investigation of commercial apple production was begun by the Department of Agriculture in 1917, and a survey has been made of every important apple-producing county in the United States. As a result of this investigation, a carefully organized system has been perfected for issuing regular monthly reports during the growing season, forecasting commercial apple production. This service has been extended to peaches, and soon will include pears and other fruits.

Investment of money in new roads does not become real economy until provision is made for keeping these new roads in condition after they are built. If a new road is built and then allowed to fall into disrepair, much of the original investment is simply wasted.

Growing Sugar Cane for Sirup Discussed In Bulletin; Crop Needs Strong Soils

Farmers for some time have desired definite information on production of sugar cane for sirup uses. To satisfy this need the United States Department of Agriculture has recently published Farmers' Bulletin 1034. Sugar cane requires eight months or more of warm, growing weather, with plenty of rain. Alabama, Georgia, and Louisiana in 1918 led in producing cane for sirup, raising 143,300 acres of the 189,580 acres devoted to this crop for sirup production in the Southern States.

Sugar cane is a gross feeder and should be grown only on strong soils particularly adapted to good cultivation. The cane land, furthermore, requires heavy and regular applications of fertilizer. This crop rarely matures seed within the continental United States and is propagated from cuttings from the stocks even in tropical countries. A crop is usually grown in the second season; sometimes the third from the root stocks which are left in the ground. It is essential that there be an abundance of humus in the soil, and where it is deficient plenty of barnyard manure should be applied or some green-manure crops should be grown and plowed under.

Both the top and underground parts of the stock are used for planting. On an old field where the root stocks of cane are not dug up a new root stock of sprouts, called ratoons, develop and produce another crop of cane, a so-called stubble or ratoon crop. However, as many root stocks do not survive, because of disease or decay, mutilation in harvesting, freezing, or unfavorable soil, the ratoon crop is rarely as good as the first or plant cane crop. The second stubble, or ratoon crop, if the stubble is left to grow another year, is usually still smaller. The custom is to harvest one plant cane crop and one to two stubble crops from each planting before the land is again broken up.

Four-Year Rotation Satisfies

The two old varieties, Home Purple or Red cane, and the so-called Ribbon cane, dominate in popularity throughout the sirup sections. The common rotation followed on the sugar plantations in Louisiana has been one year of corn and cowpeas, followed by two years of sugar cane from one planting. With the growing interest in stock raising some planters in the last few years have changed their system to the four-year rotation, with two successive years of corn and cowpeas, plowing under the peas each time and then growing cane two years. The results obtained have been satisfactory, ordinarily as much cane being produced on half the plantation as previously had been grown on two-thirds of the total acreage under the three-year rotation.

In the principal sirup-producing localities, unlike the sugar plantations, the farmer can usually select for his cane patch a piece of ground which is especially fertile and satisfactory. Good results obtain where a field is manured very heavily and then put into sweet potatoes, being cropped the succeeding year with sugar cane. It is essential that a well-prepared, mellow seed bed be made for the sugar-cane crop. On the well-drained land in Louisiana and parts of Florida it is desirable to plant the cane in the fall as late as it is safe from frost. But fall plantings are usually earlier, because after the harvesting for the mill commences all the available labor and teams are fully occupied. Hence, the fall planting is usually over by the latter part of October. If the job can not be finished at this season it is deferred until February or early March, when there is no fear of freezing. In Georgia and northern Florida planting nearly always is done in the spring.

HIGH-POWERED CANE MILLS BEST.

Sugar cane is usually grown in a four-year rotation with corn and cowpeas in localities favored with eight months or more of warm, growing weather and plenty of rain. Cane does best on well-located, fertile soils where it yields upwards of 22 gallons of sirup a ton of cane.

Cane farmers are urged to use higher powered mills, as inadequate equipment often causes them to lose 70 to 125 gallons of sirup an acre. A good outfit for the farmer who raises 5 to 15 acres of cane, with a capacity of 200 gallons a day, costs from $800 to $900.

Seed-bed preparation and the selection and planting of the seed are discussed in Farmers' Bulletin 1034, and all farmers interested in home production of sirup or commercial growing of sugar cane are invited to get and read this publication.

More Power for Mills

Often the mills on the small farms which make their own sirup are able to extract only 50 to 55 per cent of the material, whereas if greater power were provided this extraction might readily be increased to 65 per cent. The small-scale sirup maker thus sacrifices 3½ to 5 gallons of sirup a ton of cane, or 70 to 125 gallons an acre. This loss is far from being offset by the reduction in the expense of providing a stronger mill and more power. Farmers who contemplate purchasing engines and mills are advised to select more powerful ones than are commonly used. Under present sugar-farm conditions, about 22 gallons of sirup may be expected from 1 ton of cane of the good varieties and of average maturity, whereas the big mills and the sugar factories obtain a yield of 176 pounds of raw sugar, together with about 5.4 gallons of "blackstrap" molasses as a by-product from 1 ton of cane. On this basis the equivalent of 1 gallon of sirup is about 8 pounds of raw sugar and one-fourth gallon "blackstrap" molasses.

A sirup-making outfit having a capacity of 200 gallons for a day of 12 hours, such as was commonly installed on small farms producing 5 to 15 acres of cane, cost about $600 in 1914, before the European war. The present cost would be from 33 to 50 per cent more. For a smaller area of cane, 1 to 4 acres, the farmer will probably be content with the horsepower mill and round-bottom kettle outfit, having a capacity of about 60 gallons for a day of 12 hours, costing in 1914 about $125. For the production of 15 to 100 acres, some form of steam outfit, with a capacity of 800 to 1,600 gallons in a day of 24 hours, is most desirable.

Use for By-Products

There are three sugar-cane by-products—the leaves and tops, the bagasse (pomace or mash), and the skimmings, all of which are practically wasted under present systems of management. The production of tops an acre is from 3 to 4 tons. They make a silage which is but little inferior in feed value to silage made from whole corn. The bagasse or pomace accumulates in vast heaps at the sirup mills, and, as it is valuable as fertilizer, farmers frequently haul it to their barnyards, where they use it as litter or pile it in large compost heaps for some time before applying it to sweet-potato land. While the bagasse is still fresh it is also valuable as feed. Some farmers feed fresh skimmings to hogs, which is a good way of utilizing them where feasible, but less profitable than to save the cleared portion for sirup making. A farmer near Cairo, Ga., utilizes skimmings by boiling them down to thick molasses-like feed, which keeps indefinitely and is greatly relished by his live stock at any time of the year.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

Farmers Find it Pays to Use Pure-Bred Seed in Louisiana

Purchase of pure-bred seed for farmers has been an important feature of the farm demonstration work in Calcasieu Parish, La. By this project the agricultural agent of the parish is teaching a valuable lesson in better farming and assisting the farmers both to increase their profits and produce more food and feed.

As a result of his efforts about $12,000 in 1917 and $30,000 in 1918 was spent for field crop, general truck, and garden seeds. Buying of pure-bred seed corn has been given special stress, and every man who has bought seed corn has been urged to buy pumpkins, cowpeas, and peanuts to demonstrate the advantage of planting companion crops with corn.

The project was extended last year to include assistance in getting good seed rice, and to discourage the common practice of accepting any kind of rough rice as seed rice.

OUSTING HIS "BOARDER" COWS

A good example of what cow-testing associations are doing to help dairymen cull unprofitable milk producers is shown in the experience of an Iowa dairyman who reports that through the cow-testing association he learned that one cow was paying him $2.40 for each dollar's worth of feed, while another returned only 58 cents. This dairyman lost no time in selling the poor cow and five others which showed by test that they were not paying for the feed they consumed. This year he will be able to produce milk at less cost, thus increasing his profits. He writes, "I have cut down on the feed cost by eliminating the boarders, and can still further reduce it by using more clover and alfalfa than was available last year."

LANDSCAPE DEMONSTRATIONS PROVE VALUE IN COUNTRY

Two landscape demonstrations were given last year on two consolidated school grounds in Buena Vista County, Iowa. It was a new departure, designed both to find how much people were interested in the subject, and to stimulate their interest in improving the appearances of their homes and school grounds. The results of the trial left no doubt in the minds of the county agent and the extension workers.

Not only consolidated schools, but individual farmers in Buena Vista and neighboring counties are eager this year for more landscape demonstrations and are putting into practice what they learned last year. They realize the commercial and aesthetic value of planting shrubbery about homes and otherwise improving appearances.

Arrangements have already been made to hold landscape demonstrations on three farms and four consolidated school grounds in the county.

COW TESTING WORTH ALL IT COSTS

"I would not take four times what my testing work has cost me for what it has been worth to me," is the way a Tennessee dairyman expresses his appreciation of the benefits he gained as a member of a cow-testing association which was organized by the United States Department of Agriculture in his community. "The cow which has proved to be the best one in my herd was the one that I considered poorest before the tests were made. I priced one of my cows at $125 before she was tested, but now I price her at $350."

The test showed that the 19-year-old cow which this dairyman had used for the foundation cow of his herd made 68 pounds of butter fat in November. The average production for the herd during this month was over 40 pounds of butter fat.

CLUB BUYING SAVES $6,000

Fourteen farmers' cooperative clubs have been organized by the agricultural agent in Rapides Parish, La. Through them seed, fertilizers, and farmers' supplies have been purchased, resulting in a saving of more than $6,000 to the members. By cooperative buying $4,000 has been saved in the purchase of acid phosphate, $1,650 on potato sacks, $410 on Irish potato seed, and $50 on seed wheat. The agent is now planning to buy two thrashing outfits on the cooperative plan for members of the clubs.

Scale Retreats Under Fire Of Heavy Spray Attack

The San Jose scale was subjected to heavy spray-machine gun fire recently when the county agents of South Carolina held a spraying campaign. For one week the agents centered their attention on this attack, but it was continued by fruit growers until the buds on the trees began to swell and further spraying with the strong lime-sulphur solution would be injurious.

One agent reports so much interest in the proper care of home orchards that he found it impossible to visit the farms of all who wanted information on spraying and pruning. He solved the difficulty by holding a series of demonstrations in schools and orchards.

Another agent reports that during the week he sprayed 2,200 trees and pruned 300. This work is much needed and greatly appreciated, he says. At one orchard he found the owner ready to cut down some of the trees because he did not have the equipment to spray and thought the scale would kill the trees before another season.

TO SELL STOCK COOPERATIVELY

Stock raisers in Franklin County, Tenn., are firm believers in cooperative marketing. They are arranging to make a shipment of 25 carloads of stock, which will probably be moved on the same day. Recently the county livestock association, in cooperation with the county agent, completed an inventory of the fat cattle being fed in the county. It was found that 27 farmers were feeding cattle that would be ready to market not later than May. A list of 611 head has been made, and plans have been completed for collecting and sending them cooperatively to St. Louis in one shipment.

AGENT ORGANIZES GROWERS TO MAKE GOOD SEED SURE

Through the efforts of their county agent the farmers of Ford County, Kans., are organizing a pure-seed growers' association. For some time the farmers in

the vicinity of Dodge City have felt the need of home sources of dependable seed.

At the suggestion of the county agent, John V. Helper, they recently met and decided it would be of advantage to unite. An association being formed will be one of the few of the kind in the southwest country. The members plan to plant pure seed; to keep the stock pure; and to advertise their products, and hope thereby to command a better market.

The growers, through their association, will be able to produce desirable seed of standard varieties most accepted and to attract buyers for large orders.

Ford County lies in the heart of the Kansas sorghum district and is in position to command recognition for the product of the farmers' cooperative efforts.

AGENTS WORK FOR MORE GOOD CATTLE IN SOUTH

More dairy cows are leaving their homes in the North and going South to seek fame and fortune for their new owners, as a result of work of southern agricultural agents. At the annual meeting of the Louisiana Cattle Breeders' Association, held at Alexandria recently, it developed that 1,314 head of dairy cattle had been imported into that State since July 1, 1918.

The southern dairymen are not contented with anything but the best, and the agricultural agents are continually being called on to visit northern dairy sections to purchase carload lots of purebred dairy cattle to be sent South.

In Louisiana 150 herds, containing between 3,000 and 4,000 head of cattle, have been given the tuberculin test and 4 per cent were found to have the disease. This percentage is extremely low as compared with some of the northern dairy sections, but southern dairymen are enthusiastically endeavoring to stamp out the disease entirely.

In most localities the poultry house should face the south, as this insures the greatest amount of sunlight during the winter. Proper ventilation and sunlight mean a dry house and healthy birds.

One means of increasing our supply of food is to prevent loss from hog cholera. Keep the hog house and lot clean. This is important in preventing outbreaks. If any of the hogs show signs of sickness notify the State live-stock sanitary authorities, the county agent, or local veterinarian. Steps taken in the early stages of the disease can probably prevent loss, but if delayed many hogs may die.

Choose Dinner for Dobbin with Care; Feed Needs of Horses Differ Widely

There is much more to feeding old Dobbin than simply giving him a little corn or oats and then allowing him to fill up on whatever kind of hay is available. Close observation is needed more in feeding horses than any other class of live stock, specialists of the United States Department of Agriculture say, in a recently published Farmers' Bulletin No. 1030, "Feeding Horses." Horses of the same weight may have different feed requirements which make it necessary to study the individuality of the animals, says the bulletin. If the horse is not doing well on a ration a slight change should be made, but any abrupt change may cause digestive disturbances. The bulletin tells how to compute balanced rations for horses, lists a number of feeds and the value of each, and suggests maintenance rations for idle horses and for horses doing light or heavy work.

To furnish energy for work, the horse must be fed in excess of what is needed for bodily maintenance. The amount of feed needed for maintenance is about two-thirds of that required by a horse doing moderate work. If the work calls for more energy than that in the ration, the stored-up energy of the body fat, or other body tissues, will be drawn upon with a consequent loss in body weight and energy. If such feeding is continued, the horse will be so weakened that he will be unable to perform his work profitably, and also will be especially liable to disease.

No Universal Feed

No feed or combination of feeds will meet conditions in all parts of the country, and no feed or mixture is suitable for all classes of horses. In choosing a ration for a horse, select the one that meets his requirements, whether for growth, maintenance, work, breeding, or fattening. Then estimate the amount of feed needed and try out the ration. It may then appear that too little is being fed, or that the ration may be changed somewhat for economy or efficiency. If a number of horses are kept, different rations may be tested on different animals, and the best one selected for general use, but individual feeding gives the best results.

If feeds deficient in protein are fed, an excessive amount must be consumed in order that the system may secure the required amount of protein, and a waste of feed will be the result. It is essential, therefore, to use a balanced ration—one containing protein and carbohydrates—in such proportion that they will meet the animal's need without waste.

More Grain for Light Horses

Horses of the light breeds, used for pleasure or racing, need more grain and less hay than do horses doing slow or heavy work. Oats easily rank first among the feeds for light horses, and may be supplemented with crushed or soaked barley and bran. Corn is too fattening to constitute the bulk of the concentrates for light horses; it may be used, however, if supplemented with linseed meal or bran. A mixture of one of the leguminous hays, such as alfalfa or clover, fed with timothy or other hay will furnish the roughage. A larger quantity of hay should be allowed for horses less actively employed, and should be fed mostly at night. One pound of hay and from 1 to $1\frac{1}{2}$ pounds of grain to 100 pounds of live weight will be sufficient for such light horses at moderate work.

The quantity of feed for the work horse depends on the amount of work and on the speed at which it is performed; a horse requires considerably more feed when working at the trot than at the walk. It is a good rule to allow $1\frac{1}{10}$ pounds of grain and $1\frac{1}{5}$ pounds of hay to every 100 pounds live weight for horses at moderate work. At this rate a 1,200-pound horse would require 13 pounds of grain and about $14\frac{1}{2}$ pounds of hay a day. If the work is severe, the quantity of grain should be increased. The horse at hard work requires $1\frac{1}{4}$ to $1\frac{1}{3}$ pounds of grain for 100 pounds live weight. The hay, however, should not be more than $1\frac{1}{4}$ pounds for an equal amount of live weight.

The average farm implement is only about half worn out by use alone. The rest of the wear is due to rust and decay. The greatest possible profit is made out of machinery when it is used continuously for profitable work until it is worn out.

The manufacturer's success is due largely to his ability to buy raw material at the lowest prices, to sell the finished products through an efficient distribution system, and to take advantage of more economic methods of production. He builds up a system to eliminate waste, inefficiency, and extravagance. Every farmer should do the same.

Weekly News Letter

Published every Wednesday by the
Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official coöperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

OFFICIALS AND FARMERS DISCUSS FARM ORGANIZATION

Upon the invitation of the Secretary of Agriculture, a number of farmers and representatives of agricultural colleges of various States met with members of the Department of Agriculture, April 17, 18, and 19, to consider projects and plans to be followed in the study of farm organization.

The successful farm is that one which is so organized that the land, labor, and equipment can be utilized in the most profitable manner in the production of those crops and live-stock products demanded by the market. With the rapid growth of agriculture in the United States many farms have been developed without sufficient reference to the demands of the market and the best methods of handling the crops, their utilization, and the most economical methods of marketing. It is hoped that the studies to be started by the Department of Agriculture will aid farmers in developing better plans and putting farm work on a more satisfactory and more profitable basis.

The following men took part in the conference:

Prof. Alva Agee, secretary, State Department of Agriculture, Trenton, N. J.; J. B. Andrews, University of Illinois, Urbana, Ill.; Prof. Frank App, College of Agriculture, New Brunswick, N. J.; Director T. P. Cooper, College of Agriculture, Lexington, Ky.; Prof. H. M. Elliot, Army Base Hospital, Fort Sam Houston, San Antonio, Tex.; Prof. J. R. Fain, College of Agriculture, Athens, Ga.; Dr. J. I. Falconer, College of Agriculture, Columbus, Ohio; H. W. Jeffers, Plainsboro, N. J.; Prof. K. C. Livermore, College of Agriculture, Ithaca, N. Y.; A. W. Manchester, Storrs, Conn.; Prof. H. B. Munger, College of Agriculture, Ames, Iowa; Dean E. C. Johnson, Agricultural College, Pullman, Wash.; L. S. Robertson, Purdue University, Lafayette, Ind.; Director P. F. Trowbridge, Fargo, N. Dak.; L. Sweet, Denver, Colo.; E. C. Chilcott, in charge dry-land agricultural investigations, Bureau of Plant Industry; Bradford Knapp, chief, office of extension work South, States Relations Service; L. W. Larson, dairy division, Bureau of Animal Industry; C. V. Piper, in charge forage crop investigations, Bureau of Plant Industry; George M. Rommel, chief, Animal Husbandry, Bureau of Animal Industry; J. H. Arnold, G. A. Billings, H. M. Dixon, Prof. C. L. Goodrich, H.A. Miller, L. A. Moorhouse, F. W. Peck, and H. R. Tolley, office of farm management; Prof. Daniel Scoates, Agricultural College, Mississippi; Dr. A. F. Woods, president, State College of Agriculture, College Park, Md.; Dr. H. C. Taylor, chief, office of farm management; G. I. Christie, Assistant Secretary of Agriculture.

GOOD BULLS ADD TO INCOME OF DAIRIES; ALL NET PROFIT

Scrub dairy bulls are doomed. The bull association sounds their death knell, but it replaces them with bulls of better breeding. Last June there were 44 dairy bull associations and several have been organized since then. They are doing excellent work. All the records sent to the United States Department of Agriculture indicate success. Without exception they show an increased income without an increased cost.

The New Windsor (Maryland) Bull Association has furnished production records of dams and daughters for three successive years. Each year the daughters have produced more milk and butter fat than their dams, which demonstrates that the bulls were well selected. Of the 21 daughters of association bulls for which the 1918 records are available, 16 excelled their dams in butter-fat production, and 15 excelled their dams in production of both milk and butter fat.

The average yearly production of the dams was 5,560 pounds of milk and 219 pounds of butter fat. The average yearly production of the 21 daughters was 6,523 pounds of milk and 263 pounds of butter fat. In milk production, the daughters excelled their dams by 963 pounds or 17 per cent, and in butter-fat production by 44 pounds, or 20 per cent. These are not as large gains as some other bull associations have given, but are well worth while, as they are made without additional cost.

Because of cooperative ownership the bulls cost the farmers no more than would have been paid for scrubs, it costs no more to feed the daughters than to feed the dams, and it costs much less to feed the bulls because there were not so many of them. The increased production, therefore, was all net profit.

SUGAR-BEET GROWERS URGED TO PROVIDE SEED FOR 1921

That there is likely to be a serious shortage of sugar-beet seed for the spring of 1921 unless arrangements are made immediately by beet-sugar companies in the United States for their planting requirements in that year is indicated by recent cablegrams from a representative of the United States Department of Agriculture in the Netherlands, taken in connection with information regarding stocks on hand and contemplated plantings for seed in this country. The situation for 1921 is serious, because of the shortage of sugar-beet seed in Europe as compared with former years, and because of the increased activity in beet-sugar production in European countries, which will probably require a large part of the European beet seed on hand and of the European production this year and next.

Indications are that there is sufficient sugar-beet seed now in the hands of the beet-sugar companies in the United States to take care of the entire acreage to be planted to sugar beets in 1919. The most recent information in regard to the sugar-beet seed supply for 1920 indicates that there is at present a shortage of from 25,000 to 40,000 bags. This is being met through importations in order to provide sufficient seed for a normal planting next year.

Dutch growers and dealers are unable to book further orders for 1919 seed and orders for 1920 delivery must be received by them this month. At the present time surplus stocks in the Netherlands are selling at 1.3 florins a kilogram (approximately 25 cents a pound) and up, though some dealers are holding for from 2 to 2.5 florins a kilogram (approximately 35 to 45 cents a pound). Reports received from German sources indicate that prices there will remain high, or possibly increase, during the next two years.

It is possible that subsequent information may modify the situation somewhat, but Department of Agriculture officials believe every effort should be made to produce in this country during 1919, and especially in 1920, all the good quality sugar-beet seed possible, up to the American requirements.

EUROPEAN CORN BORER MUST BE WATCHED TO STOP SPREAD

Dangerous Insect May Appear at Many Points in U. S.

Distributed by Means of Many Common Plants; May Become Worst Enemy to America's Greatest Food Crop

Be on the lookout for the European corn borer. It may appear almost anywhere in the United States. Up to this time it is known to exist only in a limited area in Massachusetts and in an area of about 200 square miles in New York. The New York infestation was only recently discovered, and the pest may have reached other places where it has not yet been identified. Considering the fact that it may be distributed not only in all parts of the corn plant, but in many garden and ornamental plants and in hay, the possibility of a wide distribution is at once realized.

May Be Worst Foe

The European corn borer may become the most destructive enemy of America's greatest crop. Unless it can be controlled and held within limited areas, it is certain to cause millions of dollars of loss to the corn crop. The United States Department of Agriculture, in cooperation with the State governments of New York and Massachusetts, is doing everything possible to prevent further distribution from the known areas of infestation, but unless there is general watchfulness it may spread from some unknown point of infestation over so great an area that eradication or even control may be out of the question.

Other caterpillars that feed on corn may look to the layman much like the European corn borer. Among such caterpillars are the larger cornstalk borer, the common stalk borer, and the corn earworm. In every neighborhood, however, there are doubtless some individuals who are thoroughly acquainted with these pests and who would be able to distinguish the European corn borer from them. If there is doubt the safe plan would be to send specimens to the Bureau of Entomology, United States Department of Agriculture, or to the entomologist of the State experiment station.

Common Signs Described

The Department of Agriculture has issued a poster illustrating some means of detecting the presence of the European corn borer. Broken tassels with extrusions of sawdust-like material at the breaks are said to constitute the plainest sign of an infested field. Another symptom consists in holes in the stalk with a débris resembling sawdust extruding around the holes.

The borer enters the ears through the husks and also through the stem and the cob. At this season of the year it is hiding within the stalks of last year's corn and common garden weeds. These should be burned now in order to destroy the insect before it becomes active later in the spring.

A DANGEROUS IMMIGRANT—WATCH FOR HIM.

DRAWN FOR THE WEEKLY NEWS LETTER BY G. D. GEORGE.

Rye is excellent for use as a cover crop and for green manure, to prevent washing of the soil and leaching out of the soluble plant foods.

CHILDREN IN LODGE HOME GET CHANCE AT GARDENING

To be the possessor of a tenth-acre plot full of thrifty vegetables has become the ambition of thousands of children in the South in recent years. They are encouraged in this work by the U. S. Department of Agriculture and the State colleges, and the food supply of the country has been appreciably increased by their efforts.

Children who live in institutions, as well as those who live at home, now are to have the pleasure and profit to be derived from belonging to a garden club. Twenty-seven girls living in the Masonic Home at Montgomery, Ala., were organized into an enthusiastic garden and canning club by the home-demonstration agent of that county. The full cooperation of the superintendent and teachers in the home has been promised and the outlook for a successful club is bright.

The tenth-acre plots, which are side by side, were plowed and fertilized by the institution. The Masons offered a $10 prize to the club girl doing the best work. A canner is already owned by the institution and an excellent place to conduct the canning operations is ready for the surplus vegetables.

There are many advantages that can be realized if a number of farmers in a community adopt a common plan of raising sheep and use rams of the same type at least, if not of the same breed. If their lambs are similar and ready to ship at the same time, a number of owners can join together to fill a car or if the number of lambs is large and the quality uniform, they can sell themselves, as the buyers will come after them. Another advantage in community breeding is that new rams can be purchased jointly. Owners of small flocks can get together and buy a better ram than either of them alone would care to pay for.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Agents and Other Workers, Federal and State, Are Doing to Spread This Message in Town and Country

Cottage Cheese Still Holds Front Place as Meat Saver

Much cottage cheese was eaten last year, because it saved meat. The campaign to increase its use in every State was carried on by dairy experts and demonstrators from the United States Department of Agriculture. This year, because they have learned to like this dairy product, people want to know more of the manufacture and use of cottage cheese. State-wide work for this purpose is being carried on again in Iowa, Michigan, Kansas, and Utah. In these States the home manufacture of cottage cheese and butter, when conditions warrant, will be encouraged by the State and Federal dairy authorities, and efforts to increase the general use of cottage cheese will be made.

In New York, New Jersey, Delaware, Massachusetts, Connecticut, and Rhode Island, educational work to teach housewives the value of skimmed milk products is being carried on in the cities. The places where the women demonstrators are endeavoring to create a demand are situated where there is usually a surplus of skim milk. Dairy specialists will also help the milkmen in their efforts to manufacture cottage cheese of extra quality.

WOMAN CLEARS LAND WITH HELP OF HER CHILDREN

Women with the pioneer spirit still live, at least in Texas. In Walker County one of the members of a home club organized by the home demonstration agent is a widow with seven children. She believes in bringing up children in the country, so, undaunted by scarcity of money or adult male help, this club member decided to have a farm home. Purchasing the most suitable land she could afford, she moved her family to it.

If home is where mother is, her children already have their farm home, although they are obliged to live in a tent because there is no house on the land. With the help the children can give before and after school—nothing is allowed to interfere with their schooling—this woman is clearing the land where the house is to stand. A spot already cleared has been plowed and planted for a garden, and the vegetables grown there she plans to can and sell. The cows, chickens, and hogs which she bought are also to help clear the little home from debt. Many women in the home clubs organized by the United States Department of Agriculture and the State colleges are enabled to profit by the sale of their products and their poultry and hogs.

MAKING A MAN OUT OF MILK

Florida has found it difficult to produce enough milk to give the children in the State the amount they need for health and growth. The United States Department of Agriculture and the State college are cooperating in the effort to rid the State of cattle fever ticks and increase the number of dairy cattle. Meanwhile, the value of milk in the diet of the growing child is being emphasized in all parts of the State.

One of those convinced is a man in Manatee County. His son had always been much below the standard in weight. At 17, he weighed less than 100 pounds. At length a teacher who was progressive and sympathetic suggested he drink milk. At first he received at home little encouragement about adopting this "new-fangled idea" but now his father boasts of his son's improved appearance.

"He has gained so much he does not look like the same boy," he proudly told the home demonstration agent of the county.

CANNING CENTER POPULAR

In Birmingham, Oakland County, Mich., a canning center to conserve garden products was opened in June, 1918. Before the season was over, 6,000 jars had been canned. A seminary gave the use of the kitchens and storerooms in the school, thus eliminating rental expense. A hired supervisor had charge of the work. Not only permanent residents were patrons of the center, but members of a large near-by summer colony found it handy for canning the fruit they wished to take back to the city for winter use. The receipts for the season were $1,874.59.

A colored home demonstration agent in Forsyth County, N. C., last summer superintended the canning of 70,000 cans of fruits and vegetables. These were canned by the colored people who worked under her direction.

Children Near Milk Stations Show Improvement in Health

Plenty of milk for a child will counteract a host of other errors in his raising. Many a little Tony or Marie in this country has parents who believe baths, even Saturday night ones, are superfluous to their offspring. Fried peppers, coffee, and other indigestibles are often given these youngsters before they have teeth. But in spite of dirt and unsuitable food, if they are given plenty of clean sweet milk most of them will live and thrive, authorities now agree.

That all children may have this necessary food milk stations have been established in the poorer sections of many cities. In these stations clean milk may be had at a lower price than the milkman can deliver it to the home. The increased amount sold at these stations is good proof that their services are appreciated by the people living near them.

In a Hartford, Conn., milk station, when it was first established, one year ago, 30 quarts a day was the average sale. This spring the average daily amount bought over its counters is 235 quarts. This station is in an Italian section where a health survey last year showed 20 per cent of the children in fair health, 10 per cent at a standstill, and 70 per cent undernourished. A survey this year showed 70 per cent of these children in fair health, 10 per cent at a standstill, and 20 per cent undernourished. The Hartford health authorities credit the marked improvement to the milk station there.

It provides plenty of milk at a reasonable price and also educates the people to its value as a food for children. Some educational work is done by means of posters. Lectures and demonstrations on use of milk are also given by the home demonstration agent supervised by the United States Department of Agriculture and the State college.

SHARK MEAT FOUND "NOT GUILTY"

Shark meat is delicate in flavor and texture, and sharks are plentiful in certain parts of Florida, but the fishermen do not catch them because they are not salable. The home demonstration agent

of Monroe County, Fla., decided last winter on an effort to establish in favor this fish now under the ban. At her request a fisherman caught one, but warned her that no one would eat it. Undismayed, she invited a large company of women to a home economics luncheon at which was served a fish salad. When all had tasted the salad she asked for a vote as to how many liked it and wanted the recipe. Without exception the women voted their hearty approval, and thus proved to themselves that their prejudice was without foundation.

ATTRACTIVE FRUIT PASTE FROM MUSCADINE GRAPES

Fruit pastes are not only wholesome and delicious, but economical, because they do not require excessive quantities of sugar. Like the fruits from which they are made, they provide the body with substances needed to keep it in health, and for this and other reasons are often considered more wholesome for children than candies made chiefly of sugar. In many tropical countries paste is one of the important forms in which surplus fruits are conserved for future use. A common practice in such places is to serve cheese with fruit pastes, the combination serving much the same purpose that a salad course does in the United States.

Among the pastes none is more attractive than that made from muscadine grapes, according to specialists of the United States Department of Agriculture. The use of these grapes in combination with other fruits for paste making generally results in an improved product.

The grapes used in paste making should be sound and fresh, fully ripe, but not overripe. The fruit of varieties of high acid content, of course, makes pastes which are sprightly as compared with the product of varieties having a low acid content.

How to Get the Pulp

Probably the best means of securing the pulp is as a by-product of jelly making. The pulp left from making grape juice is nearly as good. The pulp and juice are boiled for a short time in order to dissolve the pectin, which is the substance that makes the material "jell." Pectin is insoluble in cold water and must be heated before it can act. The mixture of juice and pulp is then hung in a drain bag made of double cheesecloth. After the juice for jelly making has drained out, the pulp and seeds are left. Without further cooking this mass can be put through a ricer, colander, or similar utensil in order to remove the seeds. It is then in just the right condition for paste making.

One of the chief causes of failure in making muscadine grape paste is that consideration is not given to moisture content in the pulp. A certain amount of moisture in the pulp is necessary, but if too much is present, a caramel rather than a paste will result. If it is desired to make paste of high quality, in addition merely to separating the seeds from the pulp, it is best to work the pulp through a purée strainer in order to remove the coarser portions.

The best kind of sweetening to use in making muscadine grape and other pastes is powdered, pulverized, or confectioners' sugar. This gives a product with the smoothest finish, and is preferable to liquid sweeteners, such as sirups, because less cooking is required to drive off the moisture, and the paste is lighter in color and more attractive in appearance. Corn sirup may be used with good results. If a solid sweetener, such as powdered sugar, is used, the best proportion for muscadine grape paste making, when economy and quality of the finished product are considered, is one-half pound of sugar for each pound (or pint) of pulp.

Similar to Jelly Methods

In cooking the paste, generally speaking, the same principles are involved as in jelly making. It is better to use milk pans of such size that the paste can be spread out in a thin layer rather than to cook it in a deep vessel, such as a saucepan or preserving kettle. It should be stirred systematically to prevent burning, and for this purpose a wooden paddle having a square edge is decidedly better than a spoon. The paste should be cooked until it is so stiff that when the paddle is drawn through it the mass will not readily flow together again. When it has reached this stage, it should be poured out promptly, one-half inch deep in an oiled mold or on an enamel, marble, or china surface. Place it in a shady, airy window, covered with netting or cheesecloth. Dry for 12 hours or longer if necessary, cut in 1-inch pieces, roll in granulated sugar, and dry thoroughly.

When thoroughly dry, pack in air-tight boxes. Raisins, nuts, cherries, and vegetable coloring may be used to vary the product.

Detailed directions are given in Farmers' Bulletin 1033, "Muscadine Grape Paste," available for free distribution by the United States Department of Agriculture.

GOOD PROFIT IN SMALL FLOCK

Two settings of white Wyandotte eggs, costing $2, in five years' time netted $379 profit for a woman poultry club member in Madison County, Tenn. She is a member of one of the clubs organized by the United States Department of Agriculture and the State colleges.

The first two settings of eggs were bought in 1914. In 1915, nine hens and six cockerels were sold for $4; in 1916, 43 hens and two cockerels brought $10; in 1917, $100 worth of eggs and birds were sold; in 1918, the value of the flock, both fowls kept and sold, was $315; a total of $429. Much of the feed was waste products of the farm, and cost nothing.

The total cost of production was: Original settings, $2; two breeding pens, $30; feed, $10; advertising, 3 years, $8; a total of $50. The profit of $379 was made possible because of the smallness of the enterprise and the fact that most of the feed for the birds had no money value.

BIG PROFITS FROM TWO FOWLS

In Caddo Parish, La., one of the members of a poultry club organized by the United States Department of Agriculture and the State college is a rural school teacher. A talk early in 1918 by the home demonstration agent of the county on the superior value of pure-bred fowls so impressed the teacher that soon she purchased a pair of Rhode Island Reds. During the spring and summer of last year the hen laid 121 eggs. All of these eggs were set under brooder hens of the "common garden variety," and the hatching percentage was high. In January their owner sold for $150 the pullets and cockerels this one pure-bred pair had produced. The small size of the enterprise and the consequent individual care which could be given the chickens were the reasons for the unusual profits.

MINING TOWN APPRECIATES LIBRARY

Officials in charge of Iowa's circulating libraries were afraid to trust a set of books to the people in a certain Iowa mining district. They were afraid the books would not be cared for properly, and thought they could be placed where they would be used and appreciated more than in the mining town. Through the efforts of the home demonstration agent, however, one traveling library was sent to the community on trial. The demonstration agent interested the schoolboys who made a case in which the books were placed. This small library led to much interest among the people of the town, and the demonstration agent reports that not a single book has been lost or destroyed.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Farm Work Open for Soldiers

According to specialists of the United States Department of Agriculture identified with placing discharged soldiers in agricultural work, Georgia, Michigan, Montana, Iowa, Idaho, Virginia, Kansas, and Missouri all are in need of skilled farm labor. Conditions at the Army camps where the men are discharged show a surplus of opportunities for profitable work and a deficit of laborers. In a word, there are more farm jobs at present than there are men to fill them. At Camp Upton little information was available on farming opportunities in the New England States. However, through the activities of the State and Federal Departments of Agriculture and the county agents complete information is now available. The county agents not only secure information about farm-labor situations but they also assist soldiers in getting started right in new communities. If there is any question about the job being still open, the authorities will either telegraph or telephone for the applicant and obtain definite up-to-the-moment information. At this writing farm work is available for all discharged soldiers experienced in country life.

Big Week in Road Work

In the week ended April 12 Pennsylvania State highway officials awarded road-building contracts totaling $2,034,378, according to messages to the Bureau of Public Roads, United States Department of Agriculture, which administers the Federal aid road act. This figure is believed to represent the greatest amount of road work formally contracted for in one week by any State, and is regarded as an indication of the force that will be put behind highway construction now that Americans are turning from the world war to resume the interior development of this country. Of the Pennsylvania contracts mentioned, the Federal Government, under the Federal aid road act, is to pay $911,407. A bond issue of $50,000,000 for road building was recently authorized in Pennsylvania.

Plant Enough Seed Corn

The advice about "Plant one kernel for the blackbird, one for the crow, one for the cutworm, and two to grow" is just as appropriate now as ever. It is never advisable to plant weak seed, and it is the height of folly to attempt to atone for the weakness of the seed by planting a superabundance, as, irrespective of other conditions, weak seed will produce only low-yielding plants. For good harvests it is essential to plant vigorous seed of acclimated and well-known varieties. Experts of the United States Department of Agriculture recommend planting the best-quality seed a little thicker than the stand desired in order to provide against unfavorable conditions. If these unfavorable conditions do not arise, it is easier to remove a few stalks from the growing crop than it is to replant, which always produces late-maturing, unprofitable plants. "Plant sufficient seed to secure a good stand," say the Federal specialists, "as it is more practicable and profitable to thin a thick stand of corn than to replant a patchy, spotted field." With good seed and good soil conditions, about four kernels should be planted for every three stalks desired.

Farm Firewood a Valuable Crop

That farmers helped materially in conserving coal in 1918 by substituting wood as fuel is shown by statistics recently tabulated by the Bureau of Crop Estimates, United States Department of Agriculture. An average of 11.5 cords of wood, or a total of 77,092,000 cords, were burned on the farms of the country during 1918. The total production of cordwood during the year, which includes wood burned on farms and that sold by farmers to city dwellers, amounted to approximately 102,903,000 cords. The average farm value in 1918 was $4.73 a cord. Upon the basis of estimates for 1918, the Bureau of Crop Estimates says the farm fuel-wood crop is one of the important crops of the farm, inasmuch as only five crops—corn, wheat, oats, rye, and cotton—exceeded it in value in 1918. The figures show that farmers in the Southern States are the heaviest fuel-wood users. North Carolina leads with an average of 18 cords used on each farm during the year. The farms of South Carolina and Arkansas averaged 17 cords; of Mississippi, 16 cords; of Georgia, Tennessee, Louisiana, Kentucky, Nevada and Vermont, 15 cords.

Hope for Early Forest Flying

Army aviators should be flying over national forests several weeks in advance of June 15, when forest-fire danger becomes serious, according to the Forest Service, United States Department of Agriculture, which has arranged with the War Department for extensive tests during the coming season of the plan to detect and combat woodland blazes by means of an air patrol. It is hoped that the flying will be begun in May, so that maps of the regions to be patrolled will be ready for the aviator by the time the actual fire work becomes necessary. In accordance with instructions from the Secretary of War, the Director of the Air Service, Maj. Gen. Charles T. Menoher, has instructed the commanding officers at Rockwell Field, San Diego, and March Field, Riverside, Calif., and the Army balloon school at Arcadia, near Los Angeles, to cooperate by every possible means with the Forest Service in the experimental work. Maj. Gen. Menoher also has informed the Forest Service that if it should be desired to conduct experimental work from Mather Field, Sacramento, steps will be taken to provide personnel.

Seaweed Furnishes Potash Fertilizer

Since the war stopped the supply of potash from Germany the Bureau of Soils of the United States Department of Agriculture has been experimenting with various processes for recovering potash from kelp, a seaweed. One of the experimental plants has been in successful operation for several months.

One of the by-products is kelp ash, which contains a potash content of more than 33 per cent. Several carloads of this product have been placed upon the eastern markets for fertilizer purposes. A carload was recently sold to a farmers' cooperative association in New York and was found so satisfactory that another carload was bought later. A third carload of kelp ash will reach Baltimore about May 1. Anyone interested in buying kelp ash in carload lots for fertilizer purposes may secure further information from the Bureau of Soils.

Fake and Fad Alfalfa Products

Alfalfa has been advertised so extensively that "make-money-easy" con-

cerns are trying to capitalize on this crop by selling fake and fad products as well as worthless stock in the companies reported to produce them. As a rule, the best which can be said about many of these alfalfa products, such as alfalfa flour, alfalfa sirup, alfalfa candy, alfalfa breakfast food, and, as one circular states it, "everything except shoe blacking and toothpicks," is that they are harmless. But they are involved in stock-jobbing propositions which without question will result in loss of money to individuals who succumb to the lure of these get-rich-quick schemes. The United States Department of Agriculture has a high regard for alfalfa as a forage, but the department specialists brand as fads and fakes the medicines and so-called human food articles which are supposed to be made from it.

No Mill Fires Since Campaign Began

Nearly 18 months ago the United States Department of Agriculture began a campaign of education on grain-dust explosions in mills and elevators. Since that time not a single explosion and fire of any importance has occurred in a plant visited by the field men of the department. It was found at the outset that, for the most part, workmen in plants were not acquainted with the conditions under which explosions would occur, though these conditions were mostly of the kind that could be remedied by the workmen. Field men have visited plants throughout the country and made demonstrations, using lantern slides, motion pictures, and all other means of visual illustration. They have assisted mill and elevator owners in removing dangerous equipment and in adopting preventive measures discovered by the department. Before the campaign began, mill explosions and fires in which lives were lost and much property was destroyed were frequent.

Earthen Jars, Egg Banks

Resurrect the old earthen jar from the cellar. Filled with waterglass it possesses magic akin to Aladdin's wonderful lamp. Eggs put in it now can be taken out next fall and winter when high prices return, and it is not unlikely they will double in price in that time. Farmers and poultrymen, especially city dwellers who keep poultry are being urged by poultry specialists of the United States Department of Agriculture to preserve eggs in waterglass solution this spring and early summer when they are relatively cheap, for use during the fall and winter when they are relatively scarce and high in price. This plan is meeting with ready and widespread response, as has been shown by demands for information as to how to preserve eggs, and by reports received from druggists who have noted a marked increase in their sales of waterglass. Poultry specialists say that there will be a great increase in the number of eggs preserved this season as compared to former years. This is of benefit to the producer and to the consumer alike. It benefits the producer because it stimulates the consumption of eggs which usually falls off during the period of highest price, and it benefits the consumer by making it possible for him to have good, wholesome eggs for liberal use during the season of high prices. One effective means employed by the poultry specialists to encourage the preserving of eggs has been to demonstrate the process, the specialists and home demonstration agents giving demonstrations in homes and department stores in many States.

Cashing in on Poultry Help

This is the way poultry extension workers of the United States Department of Agriculture helped a Butler County, Mo., poultry raiser. He had a flock of 250 birds. From the sale of chickens and eggs he received $1,489.80. Feed and other expenses amounted to $764, leaving a total cash gain of $725.80. To this should be added the value of 75 hens which he raised on the farm and added to his flock. His birds are of the White Leghorn breed, and there are no unprofitable layers among them, all slackers being culled out. This year this enthusiastic poultry raiser intends to cooperate still further with the extension workers, and his poultry plant will be used as a demonstration farm.

Meat Grows More Plentiful in South

Some southern sections have ceased to import meat and other food products and now are not only able to feed themselves but are in a position to export these products from their farms. Cotton, of course, still has a prominent place in localities where the weevil is not too destructive, but diversified or safe farming is becoming popular, according to reports from many county agents. The report of the agent in Sumter County, Fla., is an example. Recently this agent supervised the cooperative shipment of 23 cars of hogs on foot and 3 cars of butchered pork, and several cars of hogs have previously been shipped from other points in the county. He states that every family has plenty of meat and lard at home.

The county agent in Orange County, Fla., reports that the live-stock men are planting more feed crops than ever before. One man who planted 10 acres of corn and 75 acres of cabbage last year is planting 85 acres to corn this year. The farmers of Orange County purchased 249 tons of nitrate of soda from the Government this year, with a saving of $9,707.

The agent in De Soto County, Fla., reports that recently another Texas cattleman located in his community and purchased 15,000 acres of land and is now fencing it preparatory to bringing in a herd of cattle from Texas. To this he will add some of the best native cows and breed up for better beef.

Still Need for Farm Help

Indications point to a shortage of farm help in many sections of Iowa this year. A survey by W. J. Guthrie, farm-help specialist, shows that 19 counties are already asking for from 8 to 25 farm laborers, including married and unmarried men. Investigations begun about the middle of January and extending to the latter part of March show the prevailing wages for single men ranged from $50 to $60. One county reported the minimum at $40 and three counties at $45. The average wage for married men was found to be from $50 to $70. These figures were secured from county agents, bankers, farmers, and others in position to judge the subject.

Beekeepers at Extension School

The fourth of the series of extension schools for beekeepers was held by apiculturists of the United States Department of Agriculture, cooperating with the Iowa State College, at Ames, Iowa, April 14 to 19. As at the other schools held in California, Colorado, and New York State, the course was designed to interest commercial beekeepers. Fundamentals of bee behavior during different seasons of the year were discussed by Dr. E. F. Phillips and G. S. Demuth, of the Federal department, and other subjects of interest to commercial beekeepers were treated by State college officials and leaders in honey producers' associations.

Filter cloth and absorbent cotton are efficient materials for strainers. Cheesecloth and wire gauze are less effective.

At the farmer's breakfast table in 1918 he drank coffee that cost him 16 per cent more than in 1914, and he had sugar that cost 59 per cent more, bread made from flour that cost 92 per cent more, and, whatever use was made of lard, it cost him 133 per cent more than in 1914.

Good Drainage Needed by Strawberries; Tests in Southeastern States Described

Strawberry shortcake would soon become a thing of the past if all strawberry plants were set in poorly drained soil. While strawberries can be grown successfully on a wide variety of soil types, good drainage is necessary, and abundant humus is essential to good yields, say specialists of the United States Department of Agriculture in Farmers' Bulletin 1026, "Strawberry Culture: South Atlantic and Gulf Coast Regions." Methods of growing and handling strawberries in these districts, where the climate is mild, and the plants grow during nearly the entire year, are different in many respects from those in other parts of the country. These regions ship over 2,500 carloads annually, or about one-fifth of the total shipments of the country.

Soil must be selected that is especially well drained says the bulletin. This is particularly important in the South where much of the land is low and often poorly drained. Leaf, root, and fruit diseases are favored by poorly drained sites. There is no particular type of soil to which strawberries are best adapted. Fine sandy to heavy gumbo soils are used. Preparation of the land for planting should be thorough. If sufficient humus is not already present, heavy applications of manure should be made, or, if this is not available, some green-manure crop should be grown on the land for a season and then turned under before setting the plants.

Parasites Are Enemies

Nematodes, also called gallworms and eelworms, are a serious menace to southern strawberry growers. They are most abundant where the soil rarely or never freezes to considerable depth, and are more injurious in sandy than in heavy soils. Where available, new land or that known to be free from nematodes should be used for strawberries. Common crops and plants known to be immune or very resistant to this parasite, such as corn, sorghum, winter oats, rye, pearl millet, velvet beans, peanuts, and a few others should be planted in rotation with strawberries. Many growers find it to their advantage in combating nematodes to secure plants from northern nurseries each year, and set them in their plantations during the winter months about every 4 feet apart in the rows.

The manner of handling these plants, sometimes called "mother plants," is to set them in January, February, or March. They will start growing at once, and by June will develop enough runner plants to cover a considerably increased area. By August these runner plants are ready for setting in a more extended area, and by October or November they in turn will have developed other runners which should be enough to form a main fruiting plantation. The exact time for making the original planting and the several transplantings of the runner plants varies in different localities and with weather conditions.

Generally two planting systems are used in the South—the hill system and the matted-row system. Under the hill system the plants are commonly set in late summer or autumn, and the crop is harvested in the winter or the following spring. Usually plants set at that time make no runners, but if any do appear they are removed. When this system is used the plants are set in single, double, or triple rows. Under the matted-row system the plants are commonly set in the winter or early spring 18 inches to 40 inches apart in rows 3½ to 6 feet distant, and the runners are allowed to root. The distance at which the plants should be set in the row depends chiefly upon the danger of loss by drought and insects. Where there is little danger of loss the plants may be set 40 inches apart, and sufficient runner plants will develop to form a solid mat in the spaces between plants.

Whatever method is used two things are of special importance: Setting the plants at the right depth and making the soil very firm about the roots. The plants should be set so that the crowns will be even with the surface of the ground after the soil has been packed about the roots. If set too deep the plant will smother, and if the crown is exposed above the surface it may dry out and die. Flower stems usually appear soon on the winter-set or spring-set plants, but the production of fruit is a severe drain on the plant's vitality, and the blossoms should be removed as they appear until the plants are well established.

Making Returns Surer

In order to give the plants a good start frequent tillage is necessary. If weeds show signs of getting a start among the plants, hoeing is required. In order to secure returns from the land during the first summer following spring planting some growers plant companion crops, such as beans, peas, and cabbage, between the rows of strawberries. Other growers, in order to economize space, intercrop strawberries in peach, apple, fig, orange, and other tree-fruit orchards. Most growers mulch the plants with pine needles or straw to keep the berries clean, conserve moisture, and prevent weed growth. Throughout the entire southern regions only two varieties, the Klondike and Missionary, are grown extensively. New varieties should be tested carefully before large areas are planted to them. If they are to succeed they must be able to endure the heat and humidity of the southern summer, and must be somewhat resistant to disease.

After berries of the best grade are grown they can not reach the market in the best condition unless they are handled with great care. The field should be picked over at least every other day, and at the height of the season it should be picked daily. No ripe berries should be left, since at the next picking they would be too soft to ship. One soft berry in a basket might spoil the entire contents, and one bad basket of berries would spoil the appearance of the crate when the berries were marketed. In picking, the stems should be pinched off, leaving about half an inch attached to the berry. Every berry should be placed carefully (not thrown or dropped) in the basket, and baskets of berries should never be left in the sun, but should be taken to the packing shed or placed in the shade as soon as possible after picking.

CIVIL-SERVICE EXAMINATIONS

An examination for position of refrigerator plant attendant in the Bureau of Animal Industry, United States Department of Agriculture, will be held by the Civil Service Commission June 3, 1919. The examination is for men only, and applicants must be at least 20 years of age and must have had at least four years' experience in the installation and operation of refrigeration machinery. Entrance salary, $1,200 a year. Those interested should write the Civil Service Commission, Washington, D. C., for Form 1800.

Examination for scientific assistant in marketing, for both men and women, on June 4 and 5, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., and in the field, will be filled from this examination. Entrance salary usually ranges from $1,200 to $1,500 a year. Applicants should apply for Form 1312, stating the title of the examination required, to the Civil Service Commission, Washington, D. C.

Peace Demands on Farm Woodlands to Exceed Even War-Time Requirements

Woodlands on farms answered big demands during the war, but peace conditions will give them an even greater opportunity, declares Col. Henry S. Graves, head of the Forest Service of the Department of Agriculture. The peace requirements of a rapidly expanding nation will be reflected in demands upon local supplies of lumber, and with the foreign market, which will undoubtedly be open to the more valuable American timbers, the pressure upon our forest resources is likely to be heavy, he says in a recent publication of the department. To provide the efficient management needed to meet the pressure, he believes that every facility should be given to farmers, through the cooperation of State foresters and agricultural extension agencies, to obtain more practical knowledge of how to market wood products and how to improve woodlands.

Farmers, he points out, are best situated to take advantage of the favorable conditions because the highest farm income is received from diversified farming which gives profitable employment to men and teams during seasons when they are not engaged in planting, harvesting, or other strictly agricultural work.

Cooperative Wood Handling Helpful

"In order to organize better the woods industries of the farms," says Col. Graves, "cooperative associations may possibly be developed similar to the cooperative creameries, live-stock associations, and other associations which have done so much for the farmers. Small woodland owners are hampered in the disposal of their timber by the fact that they often do not have enough of one grade to make a carload. By cooperating they may frequently find it possible to operate their own mill, employ a skilled sawyer and grader, and market their product to much better advantage than has ever before been possible. It may not be too much to expect also that we shall in time have home wood industries similar to those which play an important part in the daily lives of the farmers in France and Switzerland.

"There is danger that unless proper care is taken the woodlands may deteriorate as a result of cutting, instead of being improved. The temptation is to remove only the high-priced trees or those easiest to get. To yield to it would eventually result in the reproduction of the poor species and the rapid deterioration of the woodland.

"In order to take advantage of the encouraging conditions which are almost sure to develop, the farmer should begin at once systematically to build up his woodlands, using the best information available as to the kinds and character of timber which will be in demand and which will be most profitable for him to produce. Several factors will influence him in his decisions: The relative value of the timber; the rate of growth; the local conditions for marketing; the susceptibility to damage by fire, insects, disease, cattle, etc. It is evident that there will always be a national demand for such high-class timbers as hickory or white oak, though the rate of growth is not as rapid as in the case of some other species. In most cases, greater profit can be derived by raising more rapid-growing, though in some cases less valuable, species, such as red oak, basswood, ash, poplar, and pine. In restricted areas trees like the black walnut can be grown; these combine high value with rapidity of growth.

Thinnings Source of Income

"Too little emphasis has been placed, in the past, upon the importance of thinnings as a source of intermittent income. A forester's statement that it requires perhaps 50 years to mature a timber crop is naturally discouraging to a man of middle life. The fact is, however, that in any well-regulated woodland, especially of any size, periodic cuttings can be made, removing always the poorer varieties and the inferior specimens and giving the best trees an opportunity to develop into the most valuable classes of lumber. The utilization of all this material, which in a natural woodland dies and goes to waste, adds appreciably to the income which the owner eventually derives from the high-grade stock of the last cutting. In fact, if the income from such intermittent cuttings were placed in a savings bank, or were invested in some interest-bearing security, it would be found by the time of the final cutting to form a very large part of the total income from the crop.

Difference Between Farms

"In planning for the best use of farm woodlands, a distinction must be made between those on farms which contain large areas of tillable land, where the woodlot is relatively unimportant, and those on farms in hilly country where the proportion of woodland is relatively large. The first type is common throughout the Central States and in the better agricultural regions of the East. On such farms the woodland will always be a source of home supplies rather than a source of salable material.

"In the hilly regions where the tillable lands are confined to small areas in the valley bottoms, the plan should be to develop especially the forests and the dependent industries. The county agent selected for such a county should have some knowledge of forest conditions and should be able to look ahead to the future needs of the county. For such a county the goal would be prosperous communities built on sustained forest yields and small wood-working industries, with small tillable areas serving rather as adjuncts than as the main source of income.

Timber Growing for Home Use

"On every farm there is a constant demand for various classes of timber—lumber for barns, etc., fence posts, and fuel wood—to mention only a few. The difference in cost between these materials gathered from the farm and those purchased in the open market is considerable, and can not be neglected in any system of farm accounts. The main effort in the handling of the woodland on such a farm should be directed toward producing a sufficient amount of all woods materials required on the farm. Even farmers who burn coal will occasionally experience a fuel shortage, as in the winter of 1917–18, and a reserve of wood may save a great deal of discomfort."

How Woodlands Helped in War

Reviewing the farmers' part in helping to win the war, Col. Graves points out that for some special wood materials, such as walnut, ash, hickory, and black locust, the Government had to rely very largely upon what could be secured from farm wood tracts.

Farm woodlands, for instance, supplied material for propellers to drive airplanes, for treenails to hold wooden ships together, for spokes that went into wagons, trucks, and ambulances, for gunstocks, trench tools, and many other articles necessary in attacking the enemy or in giving comfort to our own men. One of the first war demands was for millions of boxes, crates, and other containers for use in shipping munitions, machinery, and other supplies overseas and to camps in this country. This demand came not only from the Army and Navy, but from auxiliary organizations such as the Red Cross and Y. M. C. A. Cantonment structures called for immense quan-

tities of lumber. The coal shortage, too, added to the demands upon the wood reserve.

"The farm woodland," says Col. Graves, "has acquired a tremendous significance in our national as well as our local forest economy."

CLEAN, FRESH, SOUND EGGS ONLY KIND TO BE STORED

Freshly laid eggs with clean, whole shells that have not been wet show a negligible loss in bad eggs, even after 10 or 11 months in storage. Imperfections in commercial handling, grading, and marketing previous to storage are mainly responsible for bad eggs developing after storage.

Those are two conclusions reached by specialists of the United States Department of Agriculture as the result of a series of experiments with cold-storage eggs recently reported. The eggs were produced mainly in the Middle West, and all were stored in warehouses in the East. Other conclusions reached are as follows:

Preservation in the shell of undergrade eggs, including those that are dirty, cracked, leaking, heated, or stale, should not be attempted. If not marketed for prompt consumption, the contents should be removed under proper conditions and frozen. The frozen product will keep in good condition for a year or more where there would be a marked loss by spoilage in a few months if the eggs were stored in the shell.

Spring eggs on the market are usually fresher than summer eggs, and for that reason keep better in storage. Most of the eggs stored are produced in the spring.

Selection Method Inefficient

The common method of grading from current receipts by inspection, and by clicking to determine cracked shells is inefficient. Cases of commercial "spring firsts," sorted by this method showed, when ready to be taken to the storage house, an average of 17.5 cracked eggs and one leaking egg to the case. Candling is a much more accurate method of selecting eggs suitable for storage. Cases of "spring firsts" graded by candling did not average more than 3 cracked eggs to the case when ready for storage. When examined after 7 to 11 months in storage, eggs selected by clicking showed an average total loss of 18.5 bad eggs per case, while those selected by candling showed a total average loss of 7 eggs per case.

Of the average of 18.5 bad eggs to the case of eggs when selection was based on clicking, after long periods in storage, 9 were due to direct spoilage of damaged eggs or to their contamination of neighboring eggs by molding. The deterioration of the balance was charged to deleterious prestorage conditions, such as dirty, stained, washed, or heated eggs, many of which could have been eliminated by candling.

Changed During Storage

The rate of evaporation of moisture from eggs was remarkably uniform during the storage period, averaging from 3 to 4 ounces a case a month in all of the storage rooms under observation. The moisture evaporated from the eggs is condensed on the brine pipes and absorbed by the air, case, and fillers. Most of the absorption of moisture by the egg package occurs during the first few months in storage.

Eggs that are fresh when stored show after storing an increased air space and often a tinge of yellow in the white. The yolk membrane is slightly weakened, but commercial separation into white and yolk is easily accomplished, even after 11 months is storage.

The percentage of ammoniacal nitrogen in eggs increases during storage, the rise being fastest in the early part of the storage period. The amount of ammoniacal nitrogen in eggs is a good index of chemical deterioration.

Present evidence indicates that the cold-storage taste which begins to develop about the seventh month in storage, and becomes stronger the longer the eggs are stored is due to the absorption of odors from the surrounding environment and particularly from the strawboard fillers. Experiments to prevent absorption of the taste from the fillers are in progress.

The detailed results of the investigations are embodied in a bulletin, "Commercial Preservation of Eggs by Cold Storage," to be issued as Department of Agriculture Bulletin No. 775.

GAME-BIRD FARMING NEEDED TO SUPPLY HOME DEMAND

General prohibition of the sale of migratory birds has created a great demand for domesticated birds to supply the market, say specialists of the Bureau of Biological Survey, United States Department of Agriculture. To meet these demands, the regulations under the migratory-bird treaty act, made in 1916 between the United States and Great Britain for the protection of game birds migrating between this country and Canada, make liberal provisions for the propagation of migratory waterfowl. These provisions apply to all persons who possess migratory waterfowl.

How Permits Are Issued

Permits are issued free of charge by Secretary of Agriculture, through the Bureau of Biological Survey, authorizing persons to acquire a limited number of wild waterfowl to be used as the nucleus of a breeding stock, or to strengthen the strain of birds already possessed, and to possess and traffic in domesticated migratory waterfowl for food purposes.

Aside from the necessity of obtaining Federal permits, marking packages in which the birds or eggs are shipped, and reporting to the Secretary of Agriculture on operations under the permits, the breeding and traffic in the birds is carried on entirely under the supervision of the States.

The fact that many States have enacted no laws on the subject, together with lack of uniformity in the laws of other States, has deterred many persons from engaging in the business, but it has been demonstrated that many species of waterfowl, particularly black and mallard ducks, can be raised profitably on lands unsuited to agriculture and also in connection with agricultural pursuits.

Uniform Laws Favored

There seems to be a growing sentiment in favor of more uniform legislation in order that domesticated birds may reach the markets with the least inconvenience to the breeders, while at the same time the protection of wild birds may be safeguarded properly. This could be accomplished in a simple and inexpensive manner, it is believed, if a marking and tagging system similar to one in successful operation in New York State for many years were adopted.

Enactment of proper laws by all States, giving full recognition to this legitimate business, department specialists believe, would encourage persons to propagate wild fowl in captivity, thus materially adding to the food supply and affording a pleasant and profitable occupation for a large number of people.

Rye is receiving more attention in the United States now than ever before. More acres and more bushels of rye were harvested in 1918 than in any previous year in the history of the country.

Recent market values for meat animals have caused a renewal of interest in the raising of live stock on farms of all sizes. The study of raising and disposing of crops to the best advantage also suggests the more general and more careful production of live stock.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI MAY 7, 1919 No. 40

BILLION-BUSHEL WHEAT CROP MAY CONGEST ALL STORAGE

Department Urges Preparations to Handle Great 1919 Yield

Past Losses Recalled; Stacking a Partial Remedy; Plans for Portable Granaries Offered Free to Farmers; Time Now to Act

With a wheat crop of over a billion bushels in prospect in the United States this season—the greatest crop the country has ever produced—the need for efforts by farmers and elevator companies to market and store the grain with the least possible loss and congestion of traffic is impressed by the Bureau of Markets of the United States Department of Agriculture. In calling attention to this great marketing problem the department says that every possible measure should be taken to insure the safe storage and and handling of this enormous crop.

Last year, with a crop of about 900,000,000 bushels, the rushing of the grain to market immediately after harvest caused a congestion all the way from the terminal markets to the farm. The wheat "backed up" after the terminal elevators were full and congested the railroads and all country elevators. The result was that embargoes were placed on further shipments until the terminals could be cleared. Fortunately, the winter was an open one or the loss due to lack of proper storage would have been heavy.

North Dakota Congestion Recalled

Attention is called by the Bureau of Markets to the situation that prevailed in North Dakota in the winter of 1915–16, following a crop in that State of 150,000,000 bushels. Owing to a congestion of elevators at country stations, due to the inability of the railroads to carry the wheat away as rapidly as the farmers hauled it in, platforms were built and hundreds of thousands of bushels of wheat were piled up in the open. In addition great quantities of wheat were stored in improvised bins.

One result of this condition was that during the following summer many farmers provided themselves with galvanized-iron storage tanks on their farms.

In Washington and Oregon, last year and in 1917, many farmers built portable wooden storage bins to hold about 1,000 bushels each.

Stacking a Partial Solution

In some parts of the country last summer, especially in Indiana, for example, stacking was a feature of crop handling where it never had been before. Stacking is a partial solution of the grain-congestion problem which every farmer can apply. Furthermore he is likely to be a gainer by the practice, for wheat that sweats in the stack, except during an unusually dry harvest season, will be of better quality than if thrashed from the shock. If stacked at once after harvest, weather permitting, the farmer may then thrash and market the wheat at his convenience. There is the further advantage that the wheat will not deteriorate should rains come, as it would in the shock. As a marketing proposition, stacking as soon as the wheat has become thoroughly dry after harvest is good business, particularly with a billion-bushel crop and congested storage facilities in sight.

Offers Plans for Granaries

Farmers should consider the question of providing themselves with storage facilities. Provision may be made to store wheat in buildings already constructed or farm granaries and portable bins may be provided. The United States Department of Agriculture has specifications for a portable farm granary, issued as Markets Document No. 11.

"FARMERS' MARKET IS SURE; THEY SHOULD BUY 'V' BONDS"

Unsettled European Conditions Add to Demand, Says Christie

Assistant Secretary Tells of Failure to Resume Production in War-Torn Lands; Foreign Crops Reduced

"Disturbed conditions in Europe, failure of the people in some countries to return to farming, flocking of millions to the large cities, reduction of crops in India, and the unfitness for shipment of much Australian wheat assure a continued heavy demand for American food products and furnish a material reason why farmers should invest their surplus money in Victory Liberty Bonds," says G. I. Christie, Assistant Secretary of Agriculture.

"A study of European conditions," said Mr. Christie, "indicates that there will be need for every pound of food that can be produced on American farms this year and that farmers will receive a fair price for their products.

Slow to Resume Production

"When the armistice was signed it was thought that the armies would be demobilized and that the people of Germany, Austria-Hungary, and the other countries of central Europe would return and take up work in large numbers on the land. There was every reason to believe that the peasants would cultivate the soil and produce a large share of the needed food for this coming year. In this respect there has been much disappointment. Due to the unsettled conditions and unstable government, the people have been slow to take up any regular occupation. In some of these districts, where there have been many large land holdings, the people are demanding that these be

Don't Quit Now—Stay Till the Finish; Invest in the Victory Liberty Loan.

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broken up into smaller tracts and distributed. Many thousands of peasants are leaving the mountain country, where they have been producing live stock, and are now coming down into the valley country, where they hope to get a share of the rich agricultural lands. The peasants on these lands are slow to plant and cultivate, thinking that they may lose their labor and their crops if the land is given to others.

People Flock to Cities

"The result of this disturbance is that food production will be materially decreased. In other territory, due to a lack of transportation and seed, crop production will be very much reduced. Conditions everywhere are such that there is little hope to have a normal production. With the disturbance in the country, it is found that the people are now flocking in large numbers to the city. In 1914, the city of Budapest had a population of about 800,000, while the population to-day is more than 2,000,000. The city of Vienna in the past few months has increased in population more than 1,000,000. During normal times the city of Vienna received 900,000 liters of milk daily. At this time this has been reduced to 90,000 liters of milk, which is given by cards to only babies and invalids. The first American flour is reported to have reached Germany within the past few days. This flour has been sold in half-pound lots for 2.14 marks. This would be at the rate of about 51 cents a pound. Other foodstuffs are selling at unusually high prices, all of which indicates that the supply of food is far from meeting the demand.

Reduced Crops; Wheat Unfit

"The alleged surplus in India and Australia has been much reduced. Instead of India having 200,000,000 bushels of wheat for export, that country must have a large amount to fight off famine. A part of the Australian surplus was lost as a result of mold, rodents, and general deterioration. Since spring and seed time is fast passing, it would seem that large amounts of American food must find their way to European countries."

Bonds Benefit Farmers

Direct benefits to farmers through the sale of Government bonds also are cited by Mr. Christie as a reason why farmers should invest in these securities.

"The recent Congress," he said, "has appropriated $100,000,000 to buy food for the hungry people of Europe. This has taken a large supply of the surplus foodstuffs, and has made a strong market for agricultural products. Recently England placed an order for 200,000,000 bushels of wheat with this country, for the reason that credit could be obtained. This credit was made possible by the money furnished the Government through the sale of Liberty Bonds. It is readily seen that the sale of these large supplies of wheat and meat is making a place and assuring a larger market for the large wheat crop now in prospect, and for the large production of grain, meat, poultry, and dairy products which is bound to come from the farms this year."

May Use Bonds as Collateral

After buying bonds, the farmers may use them for collateral in borrowing money for farm operations, Mr. Christie points out. They can carry out the operations for which the money was needed and in due time repay the banks. Meanwhile the bonds will have been drawing interest, making the actual cost of the loan comparatively small.

"The farmers of the United States," said the Assistant Secretary, "in response to the call for men for the Army and Navy, gave more than 1,000,000 boys, and, in addition, 1,500,000 trained farm workers to the essential war industries, such as shipbuilding and manufacture of ammunitions. Then the farmers in 1918 produced 35,000,000 acres more crops than ever were grown in any previous year. Farmers are supporting and serving the Government in every big move. By investing in Victory Bonds they are rendering a patriotic service and at the same time helping themselves to do their own work in a better way."

FIGHT WOODS FIRES

Forest destruction is quick — forest growth is slow.

Everybody loses when timber burns. The forest exerts an influence that modifies local extremes of heat and cold and benefits crops, live stock, and man.

Burned timber pays no wages—keep the forest productive.

Take no chances with lighted matches, burning cigarettes or pipe ashes, brush fires, or camp fires.

A tree will make a million matches—a match may waste a million trees.

When a fire is discovered, put it out if you can. Get help if you need it.

Are you practicing fire prevention and forest protection?

The milch cows of Canadian farms averaged $87 a head in price in 1918 against $84 in 1917; cattle under one year old, $25, against $24 in 1917; cattle one to less than three years old, $57, against $52 in 1917; and cattle three years old and over, $88, against $77 in 1917. Sheep on farms in Canada averaged $16 a head in price in 1918 against $15 in 1917, and swine a 100 pounds, live weight, $16, against $17 in 1917.

TWO MILLION TONS OF MEAT ADDED BY AMERICA IN 1918

Department Tells of Great Achievements in Live Stock

Three-Fourths of Increase in Pork, One-Fourth in Beef; Consumption in United States Rises During Year

American dressed-meat production, including lard, amounted in 1918 to 20,129,800,000 pounds—a quantity never before approached in magnitude by the livestock industry of this or any other country. The corresponding figure for 1917 was 16,317,300,000 pounds.

Three-fourths of this enormous increase was in pork and one-fourth was in beef.

The meat surplus in 1918 was so great that extra export demands made little impression on it, although 1918 export shipments of meat and lard nearly doubled the 1917 figures, rising from slightly less than one and three-fourths billion pounds to slightly more than three billion pounds—and these figures do not include shipments to American military forces abroad.

The aggregate 1917 consumption of dressed meat and lard in the United States was approximately 14,500,000,000 pounds, but in 1918 it rose to 17,250,000,000 pounds. This means, after allowing for increase in population, an addition of 23 pounds for every man, woman, and child in the country, despite the food-conservation campaign which in 1917 caused consumption to decline considerably.

How Shortage Became Surplus

"While the people as a whole, through their abstinence averted the immediate crisis, it was the farmer who was the really big factor in the ultimate situation," says the Bureau of Animal Industry, United States Department of Agriculture, which is authority for the foregoing statement. "The producer, of course, was expected to do his part, but he did it with such powerful effect that in a single year the meat shortage was turned into a pronounced surplus. Thus in 1918 there was not only meat enough to supply all foreign demands compatible with the restricted shipping facilities but a greatly enlarged quantity was available for the home consumption.

"To be sure, it cost the farmer more, much more, to feed his animals and get them to market. Likewise all other steps from producer to consumer became more costly; hence the high prices. But

the unprecedented prosperity of the people as a whole enabled them to afford the increased cost. In fact, laboring people probably consumed more meat during the past year than in prewar times."

Quantity Increases "Remarkable"

"The total number of cattle slaughtered in 1918 is estimated at 15,750,400," says the bureau, "as against 13,723,900 in 1917. Their average weights were practically the same for both years, and the beef produced from them was 6,686,000,000 pounds in 1917 and 7,641,000,000 pounds in 1918. This was a remarkable achievement, as it hardly would have been credited that beef growers could increase their production a billion pounds in one year.

"The hog matures quickly, therefore a much more rapid increase would be looked for than was the case with cattle. Even so, the results for 1918 can be described only as stupendous. The hogs marketed in 1918 numbered 69,854,700, as against 57,483,800 in 1917. Furthermore, the average weight was 9½ pounds more per hog in 1918. Thus when the animals are turned into pork and lard we have a total production of 11,225,664,000 pounds in 1918, as against 8,478,289,000 pounds in 1917, an increase of 2,747,355,000 pounds, or 32.4 per cent, nearly one-third."

Striking increases in exports are also shown by the bureau. Beef shipments abroad in 1918 were 94 per cent more than in 1917, the chief 1918 items being 514,000,000 pounds of fresh beef and 141,000,000 pounds of canned beef. Exports of pork and lard in 1918 amounted to 2,279,287,030, which was 71.7 per cent more than the quantity sent abroad in 1917.

The bureau shows that in the aggregate more meat by far is eaten in the United States than in any other country in the world, although some sparsely settled countries raising much meat have a larger per capita consumption. It also says that there is room in the United States for a great expansion in the use of mutton and lamb.

The hen's greatest profit-producing period is the first and second years, and unless a hen is an especially good breeder she should be disposed of at the end of her second laying season and before starting to molt.

Horses under one year of age on farms in Canada averaged $56 a head in price in 1918 against $57 in 1917; horses one to less than three years old, $112, against $116 in 1917; and horses three years old and over, $162, against $167 in 1917.

SEEKS SOURCE OF "T B" CATTLE SHIPPED TO SOUTHERN STATES

Department Acts to Stop Traffic in Diseased Stock

Buyers Warned to Be Alert in Purchasing New Animals; Safety in Herds Known to be Free From Malady

Pending the outcome of an investigation by the Bureau of Animal Industry, United States Department of Agriculture, into the sources of tuberculous cattle lately shipped to Southern States, persons about to buy stock, especially dairy animals, are cautioned to make full inquiry into the health of the stock and the sanitary conditions on the farms from which the animals come.

Veterinary inspectors of the Tennessee department of agriculture and the Federal Bureau of Animal Industry, who tested three carloads of cattle received from Illinois a few months ago by Tennessee purchasers, found that tuberculosis existed among from 50 to 90 per cent of the animals acquired. The section from which the cattle were received is now under investigation, and the case promises to parallel that of an Illinois cattle dealer who was recently convicted in the Federal court for using the United States mails to defraud prospective purchasers of dairy cattle.

Determined to Stop Fraud

The bureau, backed by the scientific and legal staffs of the Department of Agriculture, is determined that the new dairy communities of the South and other parts of the country shall not be made a dumping ground for diseased cattle sold by unscrupulous dealers. Investigations have shown that southern herds in general are relatively free from tuberculosis. Of 5,000 cattle recently tested in herds supplying milk to Birmingham, Ala., only 47 were found to be tuberculous. That is less than 1 per cent, which is much below the estimated average for the United States as a whole.

Bureau officials state that more cases of tuberculosis usually are found among the dairy herds in and near cities than among native cattle, because the former herds are augmented more often by animals shipped in from outside sources. Such a condition points to the need for greater precautions by purchasers in obtaining stock. Safety lies in buying from those farms known definitely to be free from disease. More and more pure-bred and grade herds are now being officially accredited as free from tuberculosis, and the further development of these sources of healthy cattle is expected to reduce the opportunity for traffic in diseased animals.

Reactors Show Advanced Disease

The condition of the three carloads of cattle found by Federal inspectors to be more than half tuberculous was a bitter surprise to the Tennessee dairymen. In one lot of 16 cattle 15 reacted to the test, and post-mortem examination of all but 3 cows, which were held to calve, showed well-marked lesions of tuberculosis.

In another lot of 46 animals 17 reacted to the test, 4 of which were so badly affected that they were condemned to the offal tank. In another lot one of the animals died before a test could be made.

The damage done by shipments of the kind mentioned is beyond reckoning, especially when the depressing effect of the fraud on the local dairy industry is considered. Officials of the United States Department of Agriculture declare that except in the case of valuable pure-bred breeding stock, isolated from healthy animals, the best remedy is the heroic method of slaughtering the animals which react to the test, cleaning up the herds at once, and after that keeping them free from disease as provided under the accredited-herd plan.

Cooperative arrangements in some States make the State and Government partners in sharing with the owner the loss of cattle found diseased and slaughtered. This incentive toward complete eradication is a policy which the Department of Agriculture is endeavoring to have every State adopt. The laws of many States provide—and this is an important matter for dairymen to consider—that indemnity be paid for condemned animals only after they have been kept in the State a specified period, usually six months or a year. In Tennessee bovine tuberculosis is being eradicated by the State and Government cooperatively, but the matter of reimbursement is administered by county authorities.

Every farmer should keep some sort of account system of his business. It should show the profit and loss of all of his operations.

Sometimes we can not prevent outbreaks of live-stock diseases on our farms, but we can and should always use every preventive measure and see that proper precautions are taken when the disease first makes its appearance.

Pasturing crops for hogs should be sown on especially well-drained and prepared land that is either rich or has received a liberal application of manure. Good winter pasture is not obtained except on the best-drained lands.

LOOKING FORWARD IN FARMING OPERATIONS

MAY						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Seasonal Suggestions by the U. S. Department of Agriculture in Anticipation of Farming Problems During the Next Few Weeks

NORTH AND WEST

By the Office of Extension Work North and West

HAVE A WELL-PLANNED GARDEN

Many farmers fail to realize that one-tenth of an acre devoted to a well-planned and well-tended garden will in many cases produce as much food as an acre of field crops. The garden should, and can with a little planning, be made to produce throughout the entire season instead of only during a month or two in the spring. Three to five plantings of snap beans planted at intervals of two to three weeks, at least three early and one late planting of peas, and frequent small sowings of lettuce will insure a continuous supply of these vegetables during the entire season. Sweet corn should be planted every two or three weeks during the early part of the season and, if the growing season is long, two plantings should be made in July or August for autumn use. The early garden should also be planted so that space will be available when needed for planting fall and winter crops, thus making it possible to have fresh vegetables practically the entire year.

SOW BARLEY

In the northern part of the Mississippi Valley barley should be sown as soon as possible, as early sown fields give better yields than late sown fields. Late sown barley, however, produces better than late sown wheat or oats, so that it is still possible to sow barley where it is too late to sow wheat with safety.

GROW FLAX

Flax is a good guaranty against crop loss in the sections where spring wheat is grown. It is not attacked by rust and can be sown after it is too late to sow wheat with safety; consequently its production need not be confined to newly broken land or land that is too wet for wheat. In purchasing flaxseed farmers should not pay exorbitant prices for highly advertised varieties. The seed offered for sale by most seed dealers is merely seed grown by farmers that has been purchased and cleaned. There are two advantages, however, in purchasing seed from reliable seed houses—namely, such firms can arrange to get their seed from districts where especially good seed was grown the year before, and they are also able to clean it better than the individual farmer or small seed dealer.

PROVIDE ABUNDANT WATER FOR CATTLE

Before turning cattle that have been kept in the barn or lot during the winter onto pasture a good water supply should be carefully provided for. Ponds, springs, watering troughs, or other facilities for watering should be cleaned and put into shape. It is frequently thought that the water supply is abundant early in the season and therefore that no attention need be given to it. This is a mistake, as springs and ponds fill up during the winter and troughs become damaged so they fail to hold sufficient water for the needs of the cattle. In most cases the water supply can not be materially increased, so care must be taken to conserve what is available. It is advisable to fence around springs to prevent the cattle from tramping the earth and polluting the water. The maximum use of water from a spring can be obtained by providing two or three troughs set so that the overflow from one will run into the next one. This arrangement not only makes the water more accessible to the stock but keeps it cleaner and better.

TURN COWS ON PASTURE

Farmers welcome the season when dairy cattle can be turned on pasture, as they feel that the heavy expense of winter feeding is over, and expect that during the late spring and early summer months the cows will reach their maximum flow of milk at a minimum cost. This is true within certain limits, but caution must be observed in making the change from dry feed to pasture conditions. The change should not be made too early in the spring, or too abruptly, especially in the case of cows that are producing a relatively high flow of milk and that have been fed liberally during the winter. Unless the change is made gradually there will be a decided drop in the flow of milk.

Pasture grasses in the early spring are immature and contain a high percentage of water and but a small amount of dry matter. This makes it physically impos-

(*Continued on page 12.*)

IN THE SOUTH

By the Office of Extension Work South

START ALL THE FOOD CROPS

May and June throughout the cotton States are the farmers' busy time. All the early planted crops must be frequently cultivated in May and a number of the minor, but important, food crops should be seeded during this month to get best returns. Peanuts, sweet potatoes, sorghum, cowpeas, soy beans, and velvet beans usually do best when seeded at this time in practically every section of the South.

HARROW AND CULTIVATE

Every practical farmer realizes the importance of killing weeds and grass coming in the young crops during May. It is a well-known fact that if the crops can be kept clean during this month they stand a much better chance of producing maximum yields—also that the later cultivations will be less difficult. Nothing will accomplish so much in cleaning the land and cultivating the growing crop as the section harrow and light cultivator. If you want to be sure of a full crop at the least expense use the harrow freely, even if it requires a little extra high-priced help. It is sure to pay in the long run.

SUMMER HAY CROPS

The high price of rough feed emphasizes the necessity of all farmers planting a sufficient acreage of summer forage crops to enable them to provide themselves with hay and other roughages for their live stock during the coming year. With the abundance of pasture available in the spring time, farmers oftentimes are unmindful of the necessity of providing for that period during the fall when pastures will be dry, or during the winter when there will be no feed available.

The county agents should be consulted with reference to the availibility of seed. Where outside purchases have to be made, the order should be placed at once, so that the seed may be on hand to sow.

when the soil is in good condition and the season is not too far advanced.

Among the several summer hay crops for the Southwest, sorghum or Sudan grass are undoubtedly in most favor. In the southeastern territory sorghum and cowpeas, planted any time before the first of July, will mature a great abundance of good-quality rough feed for mules or cattle. The county agents should be consulted with reference to best crops for local conditions, method of planting, and quantity of seed per acre to be used in different localities.

WHEN TO SOW KAFIR AND MILO

Kafir and milo will not germinate in cold soil. Delay seeding until the ground warms up. Seeding should start about May 15 and continue not later than June 15 in the Panhandle region of Texas and Oklahoma. At lower altitudes farther east and south seeding may start earlier and continue later than the dates mentioned.

Seeding must not be delayed too late or early frost will catch the crop before it can mature. Kafir requires from 115 to 125 days and milo from 90 to 110 days to mature, depending on the season. These crops should be sown in rows spaced 3½ feet apart. The stand should be one plant to 10 or 12 inches of row space. Thinner stands than this will be best in dry seasons. Two to three pounds of good seed is enough to sow 1 acre. The seed should be covered 1 inch deep in moist soil, while in dry soil deeper covering is necessary.

TIME TO PLANT SOY BEANS AND COWPEAS

Although soy beans and cowpeas may be sown during a period from early spring until midsummer, the time of planting depends largely on the latitude and the use to be made of the crop. As a main grain or hay crop the best time for planting is about the same as for corn, or when the ground has become thoroughly warm. The plants will then start quickly and make a rapid growth. The plants grow slowly in cool weather, and ordinarily there is no advantage in planting earlier than corn. Experiments have shown that the soy bean may be planted earlier than the cowpea, being able to withstand more cold in the early spring. For pasture, green manure, soiling, or even for a hay crop, both the soy bean and cowpea may be sown as late as August 1 in the South and July 1 in the North.

The extreme dates of successful planting at the Tennessee Experiment Station were found to be April 3 and August 6, although June proved to be the most favorable month in which to plant any variety. The yields of forage and seed secured from different dates of planting with the Haberlandt variety of soy bean and the Groit variety of cowpea at Arlington Farm, Va., are as follows:

[Tons to acre.]

Date of planting.	Haberlandt soy bean.			Groit cowpea.		
	Green forage.	Dry forage.	Seed.	Green forage.	Dry forage.	Seed.
May 1...	6.5	1.56	21.6	7.4	1.05	15.0
May 15..	5.8	1.40	18.3	6.3	.88	18.6
June 1..	7.2	1.69	25.3	8.6	1.22	23.0
June 15.	5.0	1.21	21.3	9.3	1.33	16.0
July 1...	4.8	1.15	15.3	9.0	1.28	9.5
July 15..	4.2	1.02	11.0	5.8	.88	(a)
Aug. 1..	3.6	.87	(a)	4.4	.41	(a)

a Did not mature.

The planting of the same variety at different dates or varieties of different maturity on the same date will furnish an abundance of forage or pasture from middle summer until late fall.

CRIMSON-CLOVER CALENDAR

May is the month when a large part of the crimson-clover crop in the Southeastern States may be harvested. Special interest attaches this year to the plowing under of the green-manure crop and the saving of the seed, the first because of the high price of fertilizer and the second because of the high price of seed. Whichever use is to be made of the crop, preparation should be made well in advance of the harvest season, and special thought should be given to the crop which is to follow the crimson clover.

Crimson clover, like any other green-manure crop, should be plowed under at least two weeks before the following crop is planted. If planting is made on the freshly turned mass of leaves and stems, the results are likely to be worse than if no green manure had been used. The green material must be given a chance to become at least partially decomposed, and the soil bacteria must have an opportunity to remove some of the injurious materials that are formed by organic decay. Usually it is inadvisable to follow a crimson-clover green-manure crop with any early-planted crop like cotton or early potatoes unless the land can be plowed by the first week of May. Corn is the crop most commonly used after crimson clover, as it need not be planted until the first of June.

There is every reason this year why farmers who are to grow crimson clover next year should save at least enough seed for their own use. Seed production is not a difficult matter and is, indeed, a common practice in many of the Southeastern States. The only equipment required is some form of seed stripper with which to remove the ripe heads. The seed need not be thrashed or hulled, as in the case of red clover and other clovers, but is often sown in the hull, just as it comes from the field. The seed should be gathered just as the first blossoms are beginning to wither, and harvesting must be completed within eight or nine days, as the seeds shatter badly when thoroughly ripe. Details of the construction of the seed strippers and other matters relating to seed production are discussed in Farmers' Bulletin 646, which farmers are urged to consult.

CLOVER CALENDAR

Reference was made in the Weekly News Letter of April 2 to the necessity of learning how to control the clover-flower midge. Even if there should be a good season for clover, the crop of seed can not be as large as the country needs, because the seeding of 1918 was lost in a great many sections through drought. It is desirable, therefore, that a maximum seed crop be produced if possible. The method of controlling this clover-flower midge is to destroy the larvæ of the first brood. The adults that have lived over winter will lay their eggs in the flowers of the first crop of red clover. These adults do not live very long, and if the first crop can be kept from producing bloom when the adults are flying, or if the blooms can be cut before the larvæ mature, there will be very few, if any, adults to attack the second or seed crop of red clover. Details in regard to this matter can be found in Farmers' Bulletin 971, which the department advises farmers to read during April. It is sometimes desired to get seed from the first crop of June clover, and this may be done by pasturing the clover heavily enough to keep down the bloom until the latter part of May. At this time the stock may be taken off; and, in that case, the June clover will seed at about the same time as the mammoth usually does. However, the common practice is to take a crop of hay and allow the second crop to make seed. When this plan is followed, care will have to be taken to control the clover-flower midge in accordance with the instructions found in Farmers' Bulletin 971.

During this month, also, farmers pasturing their horses on alsike clover should keep watch of their animals, especially those having white faces and white feet. A number of instances have been reported where horses have been poisoned by eating alsike clover. These in-

stances have been numerous enough to show that alsike clover has a detrimental effect at certain stages of its development. Unfortunately, nothing is known yet as to the reason of this effect, but the fact that it does occur is sufficiently well established to warrant a warning on the part of the department. When horses feeding on alsike clover are observed to have sores around the face and mouth, they should immediately be taken off the alsike clover and put upon hay or a grass pasture. This will cure the difficulty.

PEANUTS FOR PROFIT

Scarcely a day passes that inquiries are not received relative to the peanut industry in the South. It is strange, indeed, that the southern farmers have so long overlooked the real value of the peanut as a part of their cropping system and that the present high market prices of peanuts were necessary to awaken the farmers to their opportunity. Nothing has been found that will excel the true Spanish variety for general cultivation on southern farms. Great difficulty exists, however, in procuring pure seed. The only way that the farmers of the South can be sure of a high-producing strain of pure Spanish is by growing a seed patch from specially selected seed.

Thirty-six pounds of clean Spanish peanuts in the shell will plant an acre, and a one-acre seed patch, if properly handled, will produce enough seed to plant about 30 acres the next year. With this fact before them, it should be a comparatively easy matter for the peanut growers to get on the right basis, so far as the seed supply is concerned. The stock seed for planting the seed acre should first be carefully selected in the pod, then shelled by hand, and the shelled peas again carefully gone over, and all that are off color or inferior either in size or shape should be discarded.

A few years of proper selection will give the farmer a strain of seed peanuts for his conditions that can not be had from any other source. By this method, together with proper cultural practices and crop rotation, the yield per acre can be greatly increased. About the only method whereby the farmer can hope to make a profit is by cutting down production costs through increased yields per acre. The future of the peanut industry in the South is almost without limitations, and the farmers who get into the business on the right basis are going to obtain the highest profits.

INCREASING BEEF-CATTLE PROFITS

There are many ways whereby beef-cattle profits can be materially increased, or, it might be stated, there are several ways to reduce losses in the raising of beef cattle. One effective means to make the business more profitable is to increase the size of the calf crop.

In sections where spring calves are produced—and this will apply to most sections of the country—the breeding season soon will be at hand. From this time until the breeding season opens it will be time well spent to get the bulls in better breeding condition. This can easily be accomplished with bulls that are kept in paddocks away from the herd. The feeding of a little extra grain to put the bulls in better breeding condition may tend to insure a somewhat larger calf crop. By increasing the calf crop only a small percentage, the income will be materially increased, because the feed costs for the cows not producing calves are practically the same as for the cows that do. Non-producing cows are a dead loss and yield no income. Such cows a farmer can not afford to keep in these days of high-priced feeds. Every animal must produce the maximum returns in order to make the enterprise profitable.

The calf crop can also be increased by the use of more bulls. On the large ranches and farms where more than one bull is maintained, the purchase of a few more bulls may be a move in the right direction. When it is realized that a bull under average conditions will sire from 20 to 25 calves per season, and that the calf crop under many conditions can be materially increased by the use of an additional bull, it is a shortsighted policy not to provide the extra sire. It is far cheaper to feed an extra bull than to board a number of calfless cows.

TIME TO WATCH FEED SUPPLY

This is the time of the year when some provision should be made to guard against periods of feed shortage. Usually no provision is made to provide emergency feeds, and should a severe drought occur, cattle losses are often heavy. On the southwestern ranges careful management of the ranges and the prevention of overstocking will aid materially in reducing cattle losses to a minimum during adverse conditions. Overgrazing should be especially avoided during the growing season, so that there will be a surplus of grass to use during the winter or other periods of feed shortage. The planting of forage crops is highly advisable. Such crops may be in the form of silage crops or dry roughages. Grow a few acres of corn, or, in the more arid regions, use one of the numerous valuable grain sorghums. In certain sections Sudan grass and the grain sorghums will provide dry roughage to carry the cattle through periods of feed shortage. Regardless of how it is accomplished, one should try to insure against loss in case of prolonged droughts by supplying some forage in addition to the pasture.

CARE OF THE PIGS

Observations indicate that in many of the Southern States too many hog raisers follow the practice of weaning their pigs too young. In many localities it is found that they are weaning them at the age of 5 and 6 weeks. There is no better or cheaper feed for the young growing pig than its mother's milk, and hog growers should take advantage of this feed to the greatest extent possible. This can best be accomplished by feeding the sow everything she will eat during the suckling period and not weaning the pigs until they are at least 10 weeks old. It is preferable to have them nurse the sow longer—probably until she would wean them herself.

It is realized that under certain conditions this plan can not be followed, but it is quite possible it could be followed to a much greater extent than it is in many instances. Before the pigs are weaned they should have access to a self-feeder filled with corn, some good protein feed, such as tankage, fish meal, shorts, middlings, or ground oilcake.

Best results in hog growing are going to be obtained by pushing the pig to the greatest extent possible from the time he is born until he is driven over the scales. Never let the hog lose his pig fat; keep it going forward all the time. Proper feeding and care is the only way this can be successfully accomplished.

FORESTRY ITEMS

Farm forests in 157 counties east of the breaks of the plains in Texas comprise from 15 to 50 per cent of the total farm area. In spite of the careless methods of management and marketing, the wood products derived annually from the farm forests of Texas are valued at over $12,000,000. The bulk of the second-growth pine timber of Texas is owned by thousands of individual farmers, and in the future the farmer will constitute by far the most important factor in producing the lumber supplies. The truth of this statement is emphasized when it is considered that 90 per cent of the big mills in Texas will be cut out within the next 8 to 10 years.

The average farmer knows fairly well what he should get for his cotton, wheat, hogs, cattle, etc., but very few know what their timber is worth; consequently they sell it for a very small sum to professional timber buyers and look upon

their farm forests more in the light of a burden than as a valuable asset. Let every man with timber study its value and refuse to dispose of it until he is offered what it is worth on the market.

SAVE FUEL FROM THE LOG HEAPS

Look forward to next winter's supply of wood. In many parts of the country the old-time custom still prevails of burning valuable cordwood in log heaps following the clearing up of new land. Thousands of farmers must provide themselves with wood for next winter. If the farmer can not use the wood himself some neighbor, schoolhouse, or church will likely be glad to get it when cold weather comes. Much wood, apparently useless at this time of the year, will be wasted unless forethought is exercised. Postpone burning your waste wood.

Keep Rats Away from Poultry; Many Raisers Suffer Losses

Every poultry man should be on guard continually against rats. They destroy feed, eggs, and fowls, and are inveterate enemies to all kinds of poultry, from chicks, squabs, ducklings, and young turkeys just out of the shell to tough old birds awaiting the hatchet at the close of a long and noisy career. Although most of their depredations are confined to eggs and young birds, when driven by hunger rats kill full-grown fowls at roost, biting them through the head or neck.

Complaints about rats have come to the United States Biological Survey, Department of Agriculture, from many quarters. For example, a farmer in Virginia reported 26 turkeys killed by these pests in a night. Another, in Kansas, lost between 200 and 300 chickens and many eggs by rats during the course of one summer. His neighbors had similar experiences. From New Jersey has come a report of rats killing young ducks. An Ohioan has complained that the animals burrow beneath his coops and take chicks from under the hen. In certain neighborhoods of Massachusetts half of a season's hatch of chickens and ducklings has been killed by rats.

Rats multiply rapidly when left undisturbed where there is plenty to eat. One pair may increase to more than 2,000 in a single year. Whoever allows his property to become overrun by them invites vexation and loss.

Farmers' Bulletin No. 896, "House Rats and Mice," describes various methods by which the depredations of these pests may be prevented.

GREAT INCREASES IN WHEAT SHOWN IN DEPARTMENT SURVEY

Commercial Stocks Nearly Four Times Previous Year's Figure

Corn and Oats Under 1918 Figures, Barley and Rye Far Above; Other Food Products Dealt With in Reports

Commercial stocks of wheat reported in a survey made by the Department of Agriculture for April 1, 1919, amounted to 155,954,626 bushels. These holdings, reported by 10,264 firms—elevators, warehouses, grain mills, and wholesale dealers—were nearly four times as large as the stocks held by the same firms a year earlier, the actual percentage being 384.9 per cent of the 1918 stocks. The figures refer to stocks actually reported and do not represent the total commercial stocks of the country, nor do they include stocks on farms.

Visible-Supply Figures Compared

The commercial visible-supply figures, as published by the Chicago Board of Trade for March 29 (the date nearest to Apr. 1), 1919, show 92,546,000 bushels of wheat, as against 5,381,000 bushels a year earlier. The corresponding Bradstreet figures show 100,505,000 bushels, as against 10,180,000 bushels for 1918. As compared with the same date last year, these figures, as well as those obtained by the more extensive survey, show a very great relative increase in commercial stocks of wheat on April 1, 1919.

Other Cereals, Flour, and Corn Meal

The commercial stocks of other cereals reported for April 1, 1919, according to the department's statement, were as follows: Corn, 17,374,387 bushels; oats, 56,955,391 bushels; barley, 31,941,421 bushels; rye, 23,235,766 bushels. These stocks represent the following percentages of the corresponding stocks on April 1, 1918: Corn, 35.8 per cent; oats, 89.6 per cent; barley, 155.3 per cent; rye, 467.6 per cent.

The commercial stocks of flour and corn meal, as reported for the survey, were: Wheat flour, white, 6,189,256 barrels; whole-wheat and graham flour, 73,882 barrels; barley flour, 43,033 barrels; rye flour, 210,559 barrels; corn flour, 14,130,740 pounds; corn meal, 51,818,695 pounds; buckwheat flour, 22,340,628 pounds; mixed flour, 47,002,755 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 147.3 per cent; whole-wheat and graham flour, 54.4 per cent; rye flour, 74.6 per cent; corn flour, 99.4 per cent; corn meal, 56.9 per cent; buckwheat flour, 351.6 per cent; mixed flour, 189.4 per cent.

Stocks of Selected Commodities

Elevators, warehouses, and wholesale dealers reported stocks of dry edible beans amounting to 7,635,539 bushels, while wholesale grocers and warehouses reported the following commodities in the quantities indicated: Cleaned rice, 135,167,331 pounds; rolled oats, 55,705,166 pounds; canned salmon, 127,595,230 pounds; canned tomatoes, 259,340,125 pounds; canned corn, 118,628,621 pounds; sugar, 205,446,536 pounds. These stocks represent the following percentages of the corresponding stocks on hand April 1, 1918: Beans, 152.5 per cent; rice, 155.2 per cent; rolled oats, 161.5 per cent; canned salmon, 115.2 per cent; canned tomatoes, 185.4 per cent; canned corn, 170.1 per cent; sugar, 118.2 per cent.

Stocks of condensed and evaporated milk were reported by condensaries, cold storages, warehouses, and wholesale grocers as follows: Condensed milk, 39,713,762 pounds; evaporated milk, 112,114,013 pounds. The holdings of condensed milk reported for April 1, 1919, represented 122.6 per cent of the stocks held by the same firms a year earlier, while the holdings of evaporated milk represented 103.7 per cent of the April 1, 1918, stock.

Sterilization of dairy utensils is necessary for the production of dairy products of high quality, particularly milk and cream, because the washing of dairy utensils, at least by the process ordinarily used, is not sufficient to insure freedom from infection and contamination.

Egg yolks, which are rich in fat and which are often left over from cake making, may be used to enrich soups or may be combined with milk to make custards which resemble cream in composition and can be used as cream on desserts.

The combined area of the crops for which the Bureau of Crop Estimates estimates acreage was 354,822,000 acres in 1918, an increase of 3 per cent over 1917, of 6.6 per cent over 1916, and of 18 per cent over the census production year 1909, at which time the area covered by the estimates was 96.6 per cent of the total crop area. If the ratio was the same in 1918 the indicated total crop area of that year was 367,738,000 acres, an area equal to the total prewar area (not crop area) of Belgium, France, the German Empire, Italy, and the United Kingdom of Great Britain and Ireland if the area of Utah be subtracted from their total.

Weekly News Letter

Published every Wednesday by the
Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

NEW STATE-WIDE LAW PUSHES ANTI-TICK WORK

As a result of the operation of the new State-wide cattle-tick eradication law in Alabama, 22 quarantined counties conducted dipping-vat construction work in March, resulting in the building of 740 "canals to prosperity." The two other quarantined counties built no vats in March, but both of them had already constructed one-half the number of vats that will be necessary in eradicating ticks, and it is expected they will get in line in time to drive out the cattle parasite this year. These facts are told in a report to the Bureau of Animal Industry, United States Department of Agriculture, from Dr. R. E. Jackson, inspector in charge, of Birmingham, Ala.

In the 22 counties actively working dates have been set for the beginning of systematic dipping. In four counties dipping began in March, in accordance with the campaign to get an early start and prevent the reproduction of the parasite.

Persons not conversant with the full benefits that will come when the tick is permanently banished from Alabama still are fostering opposition in some sections to the tick-eradication campaign, but their numbers are steadily dwindling and it is believed that little further obstruction need be combated. Destruction of dipping vats by dynamite, which has occurred in some instances, will be allowed to interfere in no way with the systematic dipping of cattle.

"The vats will be rebuilt later by the citizens of the communities in which they were destroyed," says the report to the bureau. "In the meantime the cattle of such communities will be driven to the nearest vat in operation."

The cooperation of the State veterinarian and the live-stock sanitary board in tick eradication leaves nothing to be desired, reported Dr. Jackson. It is believed that thorough work in every infested county this season will make all of Alabama ready for release from the Federal quarantine next December.

PUBLIC HEARING TO DISCUSS NEW FOOD AND DRUG RULES

A public hearing will be held by the officials in charge of the enforcement of the Federal food and drugs act on Monday, May 19, 1919, at 10 a. m., in the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C., to discuss a proposed revision of the rules and regulations for the enforcement of that act. All interested persons are invited to attend and present their views either orally or in writing.

Tentative revised rules and regulations have been prepared by the United States Department of Agriculture, which will form a basis for discussion. Views of the trade and other persons interested are desired in reference especially to the proposed changes, but recommendations for additional amendments or changes will be considered.

No drastic changes in the present regulations are contemplated, say the officials. Most of the proposed changes in wording are for the purpose of clarifying or making more specific regulations now in effect. Some minor modifications in the rulings have been made.

Copies of the tentative rules and regulations may be obtained by interested parties upon application to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C. Recommendations or suggestions may be made in writing on or before the date of the hearing.

QUARANTINES BARBERRY AND OTHER STEM-RUST SPREADERS

The Secretary of Agriculture has proclaimed a quarantine, effective May 1, prohibiting the shipment of certain species of barberry and Mahonia into the States of Nebraska, Iowa, Illinois, Indiana, Ohio, North Dakota, South Dakota, Minnesota, Montana, Wisconsin, Michigan, Wyoming, and Colorado from the rest of the United States. Investigations of the Department of Agriculture established the fact some time ago that the common barberry and related Mahonia plants harbor the black-stem rust, which causes very severe injury to wheat, oats, barley, rye, and many cultivated and wild grasses. A hearing was held some weeks ago at the Department of Agriculture, and the quarantine now proclaimed is the result.

Follows Voluntary Action

The official quarantine, however, does little more than to recognize and make effective the practical and voluntary quarantine entered into by the great majority of nurserymen and other persons interested. An extensive campaign for the eradication of the common barberry and other rust-harboring species has been under way in the northern wheat area for the past year. The dangerous plants have been very largely eradicated from the States named in the quarantine. More than 2,000 nurserymen have signed pledges that their firms will not ship barberry plants into the areas where the effort at extermination is being made.

In the rest of the United States the black-stem rust disease is less important, and there is less or no need for the destruction of susceptible plants. It was found necessary, therefore, to prohibit the States in which these plants are not being destroyed from shipping them to the protected States.

Plants Under Quarantine

Besides the common barberry and its horticultural varieties, the quarantine covers Mahonia aquifolium, diversifolia, glauca, and repens, and the following species of barberry: Aethensis, altaica, amurensis, artistata, asiatica, atropurpurea, brachybotrys, brevipaniculata, buxifolia, canadensis, caroliniana, coriaria, cretica, declinatum, fendleri, fischeri, fremontii, heteropoda, ilicifolia, integerrima, laciflora, lycium, macropylla, neapalensis, neubertii, siberica, sieboldii, sinensis, trifoliolata, and umbellata.

No restriction is placed on the movement of Japanese barberry and Japanese Mahonia, the most valuable and most commonly planted of the barberries and Mahonias.

Argentina's wheat crop made great strides when the average yearly production increased from 53,836,000 bushels in 1891–1895, to 156,387,000 bushels in 1911–1915, and 162,528,000 bushels in 1916–1919. It has been a highly variable crop at times, however, on account of severe droughts in some years. The production was as low as 77,393,000 bushels in 1917, and yet rose to 219,431,000 bushels in the following year.

A day's work with a buzz saw or a drag saw will yield as much firewood as could be cut in many days' hard work by hand.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Many Pigs and Lambs Salvaged By Children of Farming Clubs

Many weak "orphan" lambs and pigs, requiring too much care for the average farmer or ranchman to bother with, are salvaged by the boys and girls belonging to the clubs organized by the United States Department of Agriculture and the State colleges. Patience, care, and good nursing by a youngster have brought to maturity animals which otherwise would not have survived infancy. As a result the meat supply is increased and the boy or girl is enabled to earn money.

The father of a little girl in Anson County, N. C., v) was very anxious to join a pig club, repeatedly refused to give her a pig. One of his pigs did not do well last year and he tried to sell the "runt" for $1, but could not find a buyer. His wife persuaded him to give the friendless pig to the little girl. Care and careful feeding brought it to maturity. After a while the club member's herd was increased to six. The little girl traded the best two of the litter to her father for sole possession of the mother hog, and sold the other three for $15. Having now acquired a membership in the pig club, she plans to continue in the work.

RIVER NO OBSTACLE TO GIRL WHO WANTED TO SEW IN CLUB

All last summer Virginia Turner, a little Indiana girl, rowed across the Ohio River alone to take a lesson in sewing from the county leader of the boys' and girls' club work. Early in the spring she joined one of the sewing clubs organized by the United States Department of Agriculture and the Indiana State agricultural college. Soon her family moved across the Ohio River to spend the summer in tents on the shore.

Lack of sewing conveniences in the tents and distance from the club, however, did not cause Virginia to drop her club work. Each week, when the weather permitted, she made the trip alone across the Ohio in a little boat. When the river was too rough she walked half a mile to the ferry and then crossed.

In her report, which details all the pretty things she learned to make, she writes: "Despite blistered arms and shoulders from the stiff row, I enjoyed every lesson and am looking forward to joining the club next year. I like the work better all the time."

RIVALRY STRONG IN CORN CLUBS

Competition will be stronger this year than usual among the boys and girls in the Iowa corn clubs, for 36 different corn-club champions are entered. Last year these club members grew an average of 73.8 bushels on their prize acres. Members cared for from 3 to 45 acres, from which each member selected 1 acre for his corn-club work. Many prizes will add to the interest of the Iowa corn-club members this year. The first prize for the best acre is a trip to the International Live Stock Show and also a trip to the short course of instruction at the State College of Agriculture.

CLUB GARDEN IN BOXES.

Even mining-camp children like garden club work directed by the United States Department of Agriculture and State colleges, although they are handicapped, because not only is space for gardens scarce near a mine but there is little fertile soil.

At Sunny Point, Ark., a garden club has been organized among the children. In this camp ground is so scarce that none of the children could have the regulation one-tenth acre club garden. One small club member, a Bohemian girl, not 10 years old, grows her club plants in tin pails and boxes because no ground is available. Besides her club work she does the family sewing and cooking.

PIG CLUBS START HOGS IN COUNTY

The Boys' Pig Club of Hernando County, Fla., is credited by the county agent with having done much to encourage the swine industry in the county. The success of the club members in raising pigs not only led them to expand in the business, but influenced their parents and others in hog raising. The county agent gave the movement all the encouragement possible and continuously emphasized pure-bred stock. As a result the farmers of Hernando County are establishing a record in the quality of hogs being shipped to the markets.

Parade Starts Garden Season; 'Gardenism, Not Bolshevism'

The home garden season in Dauphin County, Pa., opened recently with a parade in which 1,000 school children, many clad in gardening outfits and armed with working tools, marched through the streets of Harrisburg. It was a purely peace parade, for the keynote, "Gardenism, not Bolshevism," was prominently displayed on one of the many banners which the children carried. Farm tractors were in the line of march. Boys pushed hand cultivators and dragged rakes. Decorated automobiles carried school girls wearing sunbonnets. Uncle Sam as a "pied piper" led a band of 200 farmerettes. The parade marched to a section where some of the gardens are located and was dismissed with a victory message by the mayor.

FOUR YEARS OF CLUB WORK COMPLETED BY 33 GIRLS

Certificates were recently given to 33 girls at Meridian, Miss., who had completed four years of satisfactory club work under the direction of the United States Department of Agriculture and the State college. This is the largest number of four-year certificates given club girls in any county in Mississippi and, so far as is known, in any State. The basic value of the club work is revealed by the continued interest year after year of the boys and girls who are members and the steady increase in membership.

Practically all who received certificates in Lauderdale County, Miss., plan to continue as home demonstration club members. Fourteen will undertake the grape project during the coming year, and fourteen will cultivate one-tenth acre plots set out with wilt-resistant tomatoes.

CLUB PIG MAKES CHEAP GAINS

Herman Tedder, of Taylor County, Fla., bought a registered Duroc-Jersey pig last July and started in the pig-club work. The animal was one month old,

weighed 28 pounds, and cost $16.50. At the end of a 147-day feeding period it weighed 210 pounds. Herman fed his pig on table scraps for the first three months and allowed it to pasture in cultivated crops. Later the pig had the run of the cornfield, from which the corn had been gathered, and during the last month was pastured in a peanut field. The total bill for feed was $6.50. The boy spent 140 hours in caring for the animal, for which 10 cents an hour was charged, making a total cost of $20.50 for care and feed. This, together with the original cost, brought the total expenses to $37. At the end of the contest, when the pig weighed 210 pounds, it was valued at $100.

Canned Tomatoes Save a Home for Club Girl and Her Mother

A 14-year-old canning-club girl in Boyle County, Ky., is the daughter of a widow. There are four younger children. They own their own home, a comfortable cottage with two acres of ground, and the mother sews to support the five girls. Last year the oldest little girl joined the local canning club. Besides canning for the family's use, she canned tomatoes for sale. Proceeds from the first cans bought shoes for herself and sisters, but the bulk of the products were sent away for sale.

The cost of living rose in Boyle County during the war, as elsewhere, while the pay for sewing remained at a prewar basis. Tax day came and the mother of the five for the first time had no money to pay. The property was advertised to be sold for taxes. A few days before the date of the sale a letter came to the club member. All her canned tomatoes had been sold, and the check for them was inclosed. The amount more than covered the taxes due and their house is their own again.

CALF CLUB MEMBERS' PROFIT

Calf clubs are comparatively new in South Carolina. Last year they were organized in only two counties, but in one of these the work proved so successful that it is now being cited as an example for club workers in other counties. This club was in Union County and had 49 members. Each of the members bought a Guernsey heifer, giving the local bank a note for the purchase price. The 49 calves, which were pure-breds, cost $3,430, averaging $70. The cost of their care and feed amounted to $1,715, an average of $35, making the total cost, including interest on notes, $5,145. At the close of the contest the value of the heifers was $11,025, which left a profit of $5,880.

SOUTHERN BOYS RIVAL NORTHERN CLUB YOUTH IN CORN GROWING

Corn-club members in the corn belt have some rivals in the South who threaten to take some of the honors away from the boys who live in the land long famed for corn and hogs. In South Carolina last year the corn-club members reporting to their leaders produced an average of 46.5 bushels of corn an acre at an average cost of 48.2 cents a bushel. The net wealth thus created, counting corn at $2 a bushel, amounted to $15,263.12. The highest yield was made by a Richland County club boy, who produced 177¾ bushels on 1 acre at a cost of 18 cents a bushel, his net profit being $323.35. There were 3,178 members enrolled in corn clubs in South Carolina last year and 3,467 enrolled in pig clubs.

MUST GROW CROPS TO JOIN CLUB.

Before boys and girls may join the Putnam County, Fla., pig club they must demonstrate their ability to produce a sufficient amount of suitable feed crops for their pigs. This branch of the club work in Putnam County produces twofold results. It teaches the members a rounded-out system of farming—that of producing feed crops as well as live stock. Recently six young people in the county qualified for membership, and each received a Duroc sow pig.

FARM FLOCKS COMPETE IN STATE EGG-LAYING CONTESTS

Something different in egg-laying contests is being carried on in Missouri this year by poultry-extension workers of the United States Department of Agriculture and the State College of Agriculture. Instead of a few selected fowls competing under the care of experts, whole flocks of hens on the home farm and under the care of their owners are matched against similar flocks in all parts of the State. This is not only a contest to see which hens can lay the most eggs, the extension specialists say, but is also a demonstration to show how proper management will increase the egg production and profits of the farm flock.

The plan is to have one poultry keeper in each community of the various counties enter the contest. The contestants agree to care for their entire poultry flock as nearly as possible according to directions furnished by the poultry-extension workers through the office of the farm bureau. At the end of each month each contestant is to report expenses and income from his flock for the month. This plan will stimulate better methods of poultry management by demonstrating on a typical farm in the neighborhood the results which can be secured by proper care of the flock.

According to reports of the extension workers, 37 farm flocks are entered in the contest, with an average of 155 hens to the farm. In February the hens in the contest averaged 8.1 eggs. The value of eggs to the farm amounted to $32.08, the cost of feed per farm $18.17, and the average net profit $13.91. In the four months, November, December, January, and February, eggs valued at $100.53 were produced on each farm at a cost for feed of $73.58 for each farm. White Leghorns averaged 25 eggs for the four months and led all breeds in egg yields.

The highest record in a similar contest held in the State last year was made by N. P. Hollar, living near Harding, who secured an average production of 140 eggs from a flock of 430 birds.

LABELS MUST SHOW WEIGHTS OF SMALL FOOD PACKAGES

An amended regulation issued April 21 under the Federal food and drugs act by the Secretaries of the Treasury, Agriculture, and Commerce provides that hereafter all foods in packages containing over one-half ounce avoirdupois coming under the jurisdiction of that act must be labeled to show the net weight of food in the packages. The old regulation provided that a package containing 2 avoirdupois ounces or less should be exempt from marking in terms of weight.

This reduction was made, say officials in the Department of Agriculture, in charge of the enforcement of the food and drugs act, in order that consumers might be informed of the quantity of spices and other comparatively high-priced foods which are usually sold in very small packages and thus protect themselves from the deceptive practice of slack filling in such packages.

Deceptive Containers Used

It has come to the attention of the officials that a 4-ounce package is often used to put up as little as 1 or 2 ounces of various spices. In some instances, when only a small quantity of spice is put in a comparatively large package, the

package is folded in such a manner as to appear full or is fitted with a sifting device which makes it impracticable for the purchaser to determine whether or not the package is full. Many consumers who judge the quantity of contents by the size of the packages are easily misled by such devices into the belief that they are getting 4 ounces when, in fact, they are only getting 1 or 2 ounces.

The Federal food and drugs act, according to a recent ruling of the solicitor for the Department of Agriculture, does not prevent the slack filling or part filling of food packages. The requirement that a statement of the net weight be placed on the packages containing between ½ ounce and 2 ounces will assist consumers who will read labels carefully and compare the stated quantities on various brands and packages to learn which are slack filled and thus avoid being misled by the deceptive practice.

Text of Regulations

The amended regulation follows:

"Paragraph (j) of regulation 29 of the rules and regulations for the enforcement of the food and drugs act is hereby amended by striking out the words '2 avoirdupois ounces' and inserting in lieu thereof 'one-half avoirdupois ounce,' so that paragraph (j) as amended shall read as follows:

"'(j) a package containing one-half avoirdupois ounce of food or less is "small" and shall be exempt from marking in terms of weight.'"

It is impossible to make sweet, clean-flavored butter from old, unclean cream.

The tobacco beetle or "cigarette beetle," is by far the most destructive pest with which manufacturers of or dealers in tobacco or tobacco products have to contend.

Rye and wheat are the only grains from which light bread can be made. Substitutes can be used, up to a certain point, but the basis of such mixtures must always be either wheat or rye flour.

If every farm home would keep a supply of pop corn and a popper convenient fewer nickels would be spent for less wholesome knickknacks and more enjoyable evenings would be spent around the family hearth.

The free use of an effective lice powder is always in order. A dust bath is very essential in ridding the fowls of lice. Whitewashing is effective against vermin. Use kerosene on the roosts and in the cracks to exterminate mites.

WORLD SHEEP STATUS VAGUE BUT AMERICAN FUTURE SURE

Animal Industry Chief Points Out Probable Greater Usefulness

Advocates Double-Purpose Animals, with Low Production Costs; Room for Much Greater Use of Mutton in United States

The world sheep situation to-day is a confused knot of conflicting factors that fail to furnish precise indications of the industry's status in all countries, but that seem to make it certain that the United States has about 10 per cent of all the sheep, and that leave unaltered the dependence of the world upon sheep for clothing, food, and other comforts. These statements were made by Dr. John R. Mohler, chief of the Bureau of Animal Industry, United States Department of Agriculture, in an address here to-day before the More-Sheep-More-Wool Association of the United States.

"Raising sheeep for wool alone or for wool principally must eventually give way as a farm practice to the double-purpose animal," said Dr. Mohler, who called attention to the comparatively small proportion of mutton that is eaten in the United States, with the possibility that the consumption of that meat may be largely increased, not to the detriment of beef or pork but to take the place of the meat products that have been imported from other countries.

Keep Production Cost Low

"It is highly important that the cost of producing all sheep products be kept low," he declared, "so that the price factor will attract consumers rather than repel them. This is one of the underlying reasons for the bureau's constant effort to eliminate losses from disease, from parasites, and from other causes. Losses that in the past have seemed unavoidable already have been reduced, and we are trying to hammer the per cent of loss still lower. We are confident that a more effective control of disease will mean more yards of woolen cloth sold over the counter and more pounds of mutton in the market basket.

"If the women of the United States knew how unrestrained dogs menace the sheep industry and are a factor in the price of lamb chops and woolen clothing, they would do something about it, directly or indirectly.

Save by Eating Mutton

"The average housewife would be surprised to learn that in a year she buys for every person in the household only about 5 pounds of mutton or lamb as compared with about 71 pounds of pork and 67 of beef. If we could induce all the people to use sheep meat one day a week in the average amount of other meats, that would mean more than 20 pounds of mutton and lamb annually per capita, or four times its present consumption. More than that, the head of the family, who pays the bills, would no doubt encourage purchasing mutton and lamb in larger cuts instead of merely a few chops at a time if he were made to realize the greater economy and the greater encouragement to production. In that connection, a shoulder of mutton or a leg of lamb, being smaller than the average beef joint, should appeal especially to small families."

Increase Size of Flocks

"Sheep raising should be encouraged chiefly where the land and other conditions are suitable for it," said Dr. Mohler, "and the aim should be not so much for an increase in the number of flocks as increases in the number of sheep kept by men who are real shepherds or have the qualifications and desire to become shepherds.

"By the use of best methods of breeding and management and by planting the sheep industry where it will flourish best," he said, "we should be able to make it a more vital part of our national life than it is to-day. Sheep, which serve mankind, embody democracy. Possibly in these gentle creatures we may have a fulfillment of the promise that the meek shall inherit the earth. In any case, let us give them every opportunity within our power to do so."

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for assistant in the office of information, for both men and women, on June 10, 1919. A vacancy in the Department of Agriculture, Washington, D. C., and future vacancies requiring similar qualifications, at $1,800 to $2,760 a year, will be filled from this examination. It is desired to secure persons with considerable experience both as writer and editor, preferably one dealing with agricultural or home economics subjects for a newspaper or periodical or who has been regularly connected in an editorial capacity with a publication publishing considerable popular material dealing with agriculture and the industries or with housekeeping, the uses of food, or other domestic problems. It is

necessary that applicants be able to comprehend the scientific work being conducted by the investigators and experimenters in the Department of Agriculture and be able to put such matter into popular form, so that it may be easily understood and appreciated by the layman and at the same time be convenient for the use of newspapers, farm papers, trade journals, magazines, etc.

Investigator in wool warehousing, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at salaries ranging from $2,200 to $3,000 a year, will be filled from this examination. The duties of this position are to conduct investigations of wool warehouses and to assist in the inspection, classification, and registration of these warehouses and in the administration of the United States warehouse act. Date of examination, June 3, 1919.

Applicants for the above positions should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended April 26, 1919:

Strawberry Culture: South Atlantic and Gulf Coast. Farmers' Bulletin 1026.

Strawberry Culture: Western United States. Farmers' Bulletin 1027.

Digestibility of Certain Miscellaneous Animal Fats. (Professional paper.) Department Bulletin 613.

The Sugar-Cane Moth Borer. (Professional paper.) Department Bulletin 746.

Experiments on the Digestibility of Wheat Bran in a Diet Without Wheat Flour. (Professional paper.) Department Bulletin 751.

The Utilization of Irrigated Field Crops for Hog Pasturing. Department Bulletin 752.

Strains of White Burley Tobacco Resistant to Root-Rot. Department Bulletin 765.

Following the Produce Markets. Yearbook Separate 768.

Electric Light and Power from Small Streams. Yearbook Separate 770.

The Threshing Ring in the Corn Belt. Yearbook Separate 772.

Live Stock and Reconstruction. Yearbook Separate 773.

Some Effects of the War Upon the Seed Industry of the United States. Yearbook Separate 775.

Home Mixing of Fertilizers. Yearbook Separate 780.

The Drainage Movement in the United States. Yearbook Separate 781.

The Accredited-Herd Plan in Tuberculosis Eradication. Yearbook Separate 782.

Some Results of Federal Quarantine Against Foreign Live-Stock Diseases. Yearbook Separate 783.

Imports and Exports of Agricultural Products. Yearbook Separate 794.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 4.*)

sible for cows producing a large amount of milk to eat enough of such grass to supply the necessary amount of nutrients. The cows should be allowed on pasture only a few hours a day and the grain ration should be reduced gradually. After the change has been made cows which are producing only an average amount of milk and butter fat will find a sufficient supply of feed on good pasture. High producers, however, will require some grain throughout the season. While direct results may not show immediately, it is the general consensus of opinion that cows are brought to a better body condition and are likely to maintain their flow of milk longer during the balance of the lactation period if they receive some grain. Three to five pounds daily of grain, such as a mixture of oats, bran, and corn or barley, may be used to supplement pasture.

TIMELY POULTRY NOTES

Do not overlook the fact that the chicks must have shade. If there is no natural shade for them to stay under during the heated part of the day, be sure and provide sufficient for their needs.

One of the most important factors in keeping young chicks growing is good, clean, fresh water in vessels. As the days get warmer care should be taken to change the water as often as required to keep it clean and fresh.

Avoid overcrowding growing chicks. A coop, brooder, or colony house that was large enough to hold the baby chicks is not large enough after two or more months, depending on the breed and growth. It is absolutely necessary that growing chicks have plenty of room to grow. Cockerels that are sufficiently large should be disposed of. Chicks that have not shown proper growth should also be separated and leg or wing banded. Many of these chicks, even the pullets, should be marketed. Only the good, strong, vigorous specimens should be retained as breeders and layers, as these are the only ones that can return a profit.

Growing chicks will not eat too much if they have plenty of range so they can get the desired exercise. A good growing mash should be accessible at all times to growing chicks. Such a mash should contain plenty of bone meal, ground very fine, and fine-ground oats and barley. Be sure to have the mash ground very fine.

Growing chicks that are kept closely confined need much greater attention along all lines than those that have range. See that they have plenty of green feeds that have not wilted down to almost the decaying point and that the yards are kept sweet. Culling also is more essential when chicks are closely confined.

Do not forget to look over the young chicks from time to time for lice and mites. Hot weather is the paradise for lice and mites. So be careful, be sure, don't be sorry. Look out for lice.

Slow-growing, weak chicks should be culled during May and June. Those which have prominent physical defects, such as very crooked tails or are lame or otherwise deformed so that they are handicapped for future development and egg laying should be culled out. All males, except those needed for breeding purposes, should be gotten rid of as soon as possible.

In many sections of the country where the hatching season started about the first of the year cockerels should be separated from the pullets, especially so where Leghorns are kept.

Rye will produce profitable crops on some lands not adapted to wheat.

When dairy utensils are sterilized by steam, all bacteria and disease germs which may be upon them are destroyed, and therefore milk and cream when placed in these utensils will keep sweet much longer.

One hundred years ago the average annual production of wheat in France was 129,290,000 bushels. Steady advance was made to 327,748,000 bushels per year in the period 1906–1910, followed by decline to 314,683,000 bushels in 1911–1914. During the war period the production fell to 222,776,000 bushels in 1915 and to 144,149,000 bushels in 1917.

Hope for Stabilized Markets as Result of U. S. Reports on Live Stock and Meats

To stabilize marketing conditions as far as possible is the purpose of the Bureau of Markets, United States Department of Agriculture, in operating a reporting service on live-stock and animal products. Producers, consumers, and members of the trade are furnished market quotations on live stock and meats based on intelligible uniform classifications. With this information they are able to determine the relative margin existing between the prices of live stock and dressed-meat prices. In addition, the readers of the reports are kept informed as to the various factors affecting the sale of live stock and meats, such as supply, demand, movements, trade preferences, etc.

The market-reporting service was begun in the fall of 1916 and has been developed rapidly. At present there are 17 service centers connected by leased wire, each of which distributes daily, weekly, and monthly reports. These include daily reports on meat-trade conditions and wholesale meat prices in Boston, New York, Philadelphia, Washington, Pittsburgh, San Francisco, and Los Angeles; daily reports on live-stock loadings; daily reports on the estimated receipts and prices of live stock at Chicago and Kansas City; reports of live-stock movements in grazing and feeding sections; monthly reports on stocks of frozen and cured meats and frozen poultry; monthly reports on live-stock receipts, shipments, and local slaughter at the public stock yards of the United States; and monthly estimates on the supply of marketable live stock.

Gives Check on Profiteers

On the leading eastern and Pacific coast meat markets information is gathered daily by a corps of specialists on the fresh-meat supply, including beef of various grades, veal, pork, lamb, and mutton. The information is assembled and transmitted over the Bureau's leased wires to its various branch offices at market centers, where it is posted on bulletin boards and distributed free of charge by messenger and by mail to everyone who desires it. Such information fortifies the commission man as well as the producer with information which formerly was possessed only by the large meat-packing institutions. As applied to fresh meats, this service offers complete information to the public concerning the supply and the values of all commercial grades. It eliminates secrecy, so that when prices of meats are high it is possible to determine the reasons therefor.

Although at present these facts are utilized principally by those actively engagegd in some branch of the meat trade, it is believed that ultimately the general public will utilize this knowledge and use it as a check on those dealers who reduce consumution by an unwarranted margin of profit.

Nothing Left to Guesswork

In the past receipts of live stock at the various markets were estimated by unofficial agencies, being based on such information as could be obtained from the transportation companies, but frequently representing only guesswork. Although under Government supervision these data come from the same source, the information obtained is so accurate and complete that nothing is left to guesswork. The superintendents of all railroads carrying live stock wire each night to the Bureau of Markets' Chicago office the number and destinations of all single and double deck cars of each class of live stock loaded in the United States in the preceding 24 hours. At Chicago the information is tabulated and distributed to all points reached by leased wires. The dissemination of this information has operated to stabilize prices. These daily reports show the movement of live stock not only to the large market centers but also to the smaller slaughtering establishments. This information is supplied to the producer concerning the opening up of new channels of trade, and the knowledge of the demand by smaller plants has a tendency to stimulate competition among buyers and creates a wider outlet with better returns to producers. In December, 1917, the Bureau of Markets was able to show that two and a half millions of sheep were on feed west of the ninety-seventh meridian, exclusive of Oklahoma, this information being based on loading reports. With such information available, the amount of live stock normally moving from production areas being known, it is possible to regulate the supply of cars needed and to determine the probability of car shortages for any particular district.

Reports Stabilize Markets

The live-stock loading reports facilitate and make more accurate the determination of receipts. In the past it has been shown frequently that unofficial estimates have been as much as 200 per cent greater or less than the actual receipts. With such wild estimates eliminated, fluctuations are bound to be decreased and markets stabilized in a corresponding degree. The live-stock shipper can obtain information from these reports which will enable him to defer his shipment to any particular market or to forward it to a market that is in no danger of being glutted. The better distribution of live-stock receipts resulting from information obtained from the loading reports enables commission men and buyers to render better service in the handling of live stock after it arrives at the stockyards. Heavy receipts arriving unexpectedly create congestion and confusion, which in turn invariably result in unnecessary shrinkage and in costly delays working to the disadvantage and loss of the producer and thereby discouraging production. A better distribution of live stock not only relieves congestion at live-stock centers, but also effects increased efficiency in handling the live stock in transit. Improving the system of distribution makes fewer cars necessary for the handling of the same number of animals and expedites their delivery to their respective terminals.

Day's Events Shown

Telegraphic bulletins issued from the Chicago and Kansas City live-stock markets constitute an important branch of this live-stock reporting service. These reports are issued from time to time during the market hours of each day and record the actual as well as the estimated arrivals of live stock and the exact condition of the market as developed at the time each message is sent. This information is transmitted over leased wires to other markets where the Bureau of Markets maintains branch offices, and there the information is displayed on bulletin boards and is furnished to all who make request for it. Part of this material is furnished to the commercial news departments of the telegraph companies and in that way is disseminated widely. From similar sources the daily papers get live-stock reports on these two markets. It has been observed that the reports emanating from the bureau at these markets conflict in many cases with those obtained from other sources. It should be remembered that the bureau report gives only the actual facts in the case, while other reports in many instances are based either on conjecture or incomplete information. More and more all markets outside of Chicago and Kansas city are relying upon the official daily reports, and as they are posted conspicuously in all leading markets and delivered by messenger and mail from 17 branch offices the service be-

comes of unquestioned value to the producer as well as to the buyer. It is a service that helps the commission man to obtain full value for live stock consigned to him, basing those values on prices at the controlling markets of the country.

Other Information Available

The Bureau of Markets has been efficient also in collecting and distributing information as to the movements of live stock to and from grazing and feeding districts. Work of this nature provides reliable information concerning the potential meat supply, while it also tends to lessen market congestion and prevent violent price fluctuations. It should be of particular value in regulating the movements of fat stock from these districts to market. The Bureau also issues monthly information on the supplies of frozen beef, frozen lamb and mutton, frozen pork, cured beef, dry salt pork, pickled pork, lard, frozen poultry, and miscellaneous meats in storage, according to the principal geographical divisions of the United States. Furthermore, the Bureau's monthly reports on receipts and shipments of live stock at stockyards at present cover records from 81 stockyards, the classification being such as to show the number of cattle shipped and hogs slaughtered, as well as the number shipped to other markets each month. In addition, valuable data are received from 55 stockyards on the stocker and feeder movement and this information is released in the monthly reports. The producer, by knowing something of the volume of distribution, is in a better position than ever before to determine the length of the feeding period which will afford him the most profitable returns and to direct his shipments to markets that are not congested. The Live Stock and Meat Trade News, a weekly bulletin concerning items relating to the live-stock industry, is also widely distributed and of particular interest to live-stock trade and farmers in general.

All of the reports referred to in this article are furnished free to any who will request them from the Chief, Bureau of Markets, Washington, D. C.

Market white-shelled and brown-shelled eggs in separate packages. Uniform products command the best prices. Never market small or dirty eggs.

Pure-bred poultry means uniformity of products. Uniformity of products means increased profits if they are properly marketed. Given the same care and feed, pure-bred fowls will make a better profit than mongrels.

Strawberry Directory Gives Best Kinds; New Varieties Constantly Introduced

Strawberry growers in doubt as to what variety is best suited to their soil, climate, and use should find much help in the solution of their problems in Farmers' Bulletin 1043, recently published by the United States Department of Agriculture. The bulletin is intended as an aid to both commercial and amateur strawberry growers.

The information is based largely on the experience of successful growers in practically every important commercial strawberry-producing district throughout the country, but the results of experiment-station tests, the experience of commercial canners and by-product manufacturers, the preferences of amateur fruit growers, and the conclusions resulting from wide observations of the department's specialists have been used in making up the variety lists which are given for different sections.

From the beginning of commercial strawberry growing, about 1800, the Large Early Scarlet was the leading variety grown in the United States. About 1860 the Wilson replaced this variety, because it was much firmer and was more suitable for shipping to distant markets. From about 1880 varieties began to replace each other in more rapid succession, until at present 25 sorts constitute about 90 per cent of the total commercial strawberry acreage. The Klondike, the leading variety in the Southern States, heads the list, constituting 28 per cent of the total strawberry acreage. The Aroma, the favorite variety in the South Central States, is second with 13 per cent of the total acreage, while the Dunlap in the Northern States ranks third, with 10 per cent.

New Sorts Established

Since 1900 many varieties especially adapted to conditions in various parts of the country have been introduced. Thus the Missionary has become the leading sort in Central Florida and the Klondike in most other parts of the South; the Aroma in most of the milder regions of the Central States from southern Indiana, Illinois, and Missouri, south to Tennessee and Arkansas; the Dunlap in all the Middle West north of the Aroma section; the Jucunda in western Colorado; the Clark, Marshall, Oregon, and Klondike in most of the Pacific Coast States; and the Gaudy in the States north of the Ohio and Potomac Rivers and east of the Mississippi. In the Northeastern States the Chesapeake, Joe, Parsons, Late Stevens, Belt, Glen Mary, and Williams are widely grown.

The Klondike became the favorite in the South, because it makes a quick growth of plant and berry in the early spring, so that the fruit matures before the extremely hot weather. The berries are firm enough to hold up several days in shipment to market, and the variety is fairly resistant to diseases that are common in southern regions. In the North Central States strawberry growing was not entirely safe until introduction of the Dunlap, which is hardy, productive, and quite resistant to disease. Wild strawberries do not often supply ripe fruit for more than three weeks, and until the Wilson was introduced this was the usual length of time that fruit could be obtained on any one market. With the introduction of still firmer sorts, it became possible to obtain strawberries in the larger markets from early in the winter, when the berries are shipped from Florida, until July, when berries ripen in the extreme North. Since the introduction of the Superb, in 1911, and the Progressive, in 1912, it has been possible to obtain locally-grown berries in most northern markets continuously from July to October.

Pollination Necessary

Two types of flowers, imperfect or pistillate, and perfect or staminate, are produced by different strawberry varieties. Imperfect flowers contain pistils but no stamens, while perfect flowers contain both. Pollen which is produced in the stamens is essential to the setting of fruit. A variety with perfect flowers, therefore, can produce fruit when planted by itself, but one with imperfect flowers can not set fruit unless perfect-flowering plants are near to furnish pollen through the agency of bees or other insects. Where imperfect varieties are used the usual practice in planting is to set one row of a perfect variety for every two or three rows of an imperfect one.

New varieties are being constantly introduced to the trade, but according to the bulletin, few of them possess any special value as compared with others already more or less well known, and most of them soon disappear from the nurseryman's list, or, at best, remain of only local importance.

Provide a box partly filled with road dust or wood ashes so as to give the hens an opportunity to take a dust bath. It gives them needed exercise and keeps them free from lice and mites.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Army Trucks for Federal-Aid Roads.

An extra contribution of materials running into the millions of dollars will be made by the Federal Government to road building in the States through the terms of a recent amendment to the Federal aid road act empowering the Secretary of War in his discretion to transfer military equipment not needed by the Army to the Department of Agriculture for use in highway construction. The Judge Advocate General's Office of the War Department has decided that the material so transferred can not be charged for. The War Department has informed the Bureau of Public Roads that it has a large number of surplus motor trucks available for this purpose, and State highway departments now are being asked by the bureau what quantities they can put to use. The Bureau of Public Roads officials believe there will be sufficient to meet all demands from the States. The trucks and other military equipment transferred by the War Department must be used only on Federal aid projects and can not be sold by the State after they are donated from the Federal Government.

Breweries Become Maltose Factories.

A big problem confronting the breweries is the utilization of the plants, equipment, and labor heretofore employed for the production of beer. Many breweries are considering, and some have begun the manufacture of maltose sugar sirup which requires but little additional equipment and which utilizes barley, one of the principal materials used in the making of beer.

Maltose is a sugar which in addition to being sweet has a pleasant flavor, and otherwise resembles cane sugar. It can be used to advantage in numerous food products. The breweries, being already equipped with much of the machinery necessary for the manufacture of maltose, and as their employees are acquainted with most of the processes, the conversion of the maltose from the starch in barley, corn, etc., is a simple matter.

Maltose propaganda on anything like a large scale was begun by experts of the United States Department of Agriculture when the sugar shortage became acute, 18 months ago. They recommended its use, in the sirup form, in soft drinks, in ice cream and confections, in bread making, and as a table sirup. Recently brewers have been making pilgrimages to Washington to consult with the experts of the department both on matters of converting plants and of outlets for the product.

The breweries have heretofore used in beer making about 70,000,000 bushels of barley annually, more than one-fourth of the crop. The maltose industry, when developed, is likely to furnish a market for an equal quantity.

Safety in Lightning Rods.

Lightning rods properly installed reduce risk of loss by lightning to almost nothing, say officials of the United States Department of Agriculture. The annual property loss from lightning in the United States is about $8,000,000, and by far the greater part of this loss is in the rural districts. Directions for installing lightning rods are given in Farmers' Bulletin 842, "Modern Methods of Protection Against Lightning," which may be obtained free from the Division of Publications of the Department. All fire insurance companies, says the bulletin, should reduce premiums in favor of buildings satisfactorily rodded.

Better Yields from Oats.

The Iowar oat, developed by the Iowa Experiment Station and the Office of Cereal Investigations, United States Department of Agriculture, is becoming popular in the Hawkeye State. Approximately 1,000 bushels of seed were distributed during the current season, while a sufficient acreage is being sown on the station this spring to insure a similar distribution next year. This is a high-yielding strain of white oats, a selection from Sixty-Day. It produces several bushels more an acre than do ordinary varieties. Albion (Iowa No. 103, Cereal Investigations No. 729), a mate of the Iowar, distributed a few years ago, also has become popular from Indiana west to the mountainous country where an early white oat is desired.

Richland (Iowa No. 105, Cereal Investigations No. 787), a short-strawed, early yellow oat developed from the Kherson, is especially desirable for use on rich bottom soils, where common varieties of oats tend to lodge. This new oat also is very popular and yields from 4 to 5 bushels more than its ancestor Kherson.

The Cornell Experiment Station has distributed widely in New York a selection from the Welcome oat, developed in cooperation with the Office of Cereal Investigations. Similarly, a high-yielding, very heavy awnless winter oat also has been distributed to a limited extent in Mississippi and Louisiana under the name of Aurora. It was developed at the Arlington Experimental Farm by the Office of Cereal Investigations.

Specialists of the United States Department of Agriculture report that, as a rule, the oat crop in the South came through the winter in excellent condition.

"Finger Prints" for Wheat Varieties.

Specialists of the United States Department of Agriculture have been busy for several years in the classification and identification of varieties of wheat grown in this country. They have identified approximately 150 definite varieties, but these are known by at least 500 different names. This work of wheat classification involves investigation of the early history of each variety from its introduction into the United States up to the present stage of its progress. Wheat was sown as early as 1602 by Gosnold, the explorer, on one of the Elizabeth islands in Buzzards Bay. It was not until nine years later that the first wheat was sown in Virginia, while not previous to 1648 did the total crop of the Old Dominion exceed several hundred acres. The "finger-print" work which the United States Department of Agriculture is conducting in identifying and classifying all varieties of this grain is expected to be of great economic value to the wheat-growing world in general and agronomic workers in particular.

A wheat varietal survey or questionnaire has recently been mailed to crop correspondents in all wheat-producing counties of the United States. From a summary of these reports, the distribution of wheat varieties in 1919 is to be ascertained.

Increased Use of Alsike Clover.

The demand for alsike clover seed this spring has been much greater than formerly, because seed of this clover is cheaper and has a greater covering ca-

pacity. Present indicatious are that the area seeded in 1919 will be so large as to reduce the possible carry over of alsike seed to a minimum. This will mean that the 1920 crop of clover must be grown almost entirely from seed harvested this year.

More Gardens This Year.

The fact that the war is over does not mean that folks are going to stop making gardens. The interest that thousands of patriotic gardeners had last year seems to be growiug instead of lagging, and their enthusiasm has attracted others to the gardening habit. A report from the Iowa State club leader shows that the eurollment in city garden clubs iu that State indicates a marked increase over last year. Up to the last of March the enrollment in Des Moines showed 2,000 more members than were registered a year ago. Of 107 Iowa cities reporting, 91 had already enrolled paid garden club supervisors for the summer, more than twice as many as had paid supervisors last summer.

Better Meals for School Children.

An effort to secure better noon-day meals, with at least one warm dish, for school children is receiving the attentiou of home demonstration agents, county agents, and school officials in Iowa. "Farmers warm water for cows in cold weather, cook feed for hogs in winter, and heat coffee for themselves when lunching out in the timber during the wood-cutting season, but too often allow their children to eat cold food at noon day after day," says an Iowa county superintendent who strougly favors warm school lunches for country school children. "Something warm at noon will benefit the childreu physically and mentally. They will also learn something of good-food principles, serving, and table etiquette if the right teacher is on the job."

Girl's 1/10-acre=6-ton Crop, 5 Years.

For five consecutive seasons Jessie Wooddell, of Garland County, Ark., has been in the club work organized by the United States Department of Agriculture and the State college. She was 13 when she started the work in 1915. That year she gathered 2,400 pounds of tomatoes from her one-tenth acre. Nearly all were sold fresh, but some of them, canned, wou a prize for her at the couuty contest. The next year the tenth-acre bore 3,240 pouuds. She filled and sold 200 three-pound cans and disposed of the rest while they were fresh. Again a prize was won with her canned products. The year 1917 was ideal in Arkansas for tomatoes, and this club member harvested 4,276 pounds from her garden, which brought her a profit of $151.85. At the county fair that fall her canned products won a $25 prize. The season of 1918 was very dry and the yield was only 3,500 pounds, but prices were higher than before and her profits from the tenth-acre was $211.20. At the Arkansas State fair last year, an exhibit of her canning work won the first prize, a scholarship in an agricultural school. This prize, with the money she had made in the other years of club work, makes real a cherished dream of higher education for this home canner who persisted.

County Bureau Has Exchange System.

The members of the Jasper County, Iowa, farm bureau are enthusiastic over an exchange system which is said to be one of the most efficient of the kind in the State. Through it all sorts of farm products are transferred among members. Recently 46 bushels of clover seed were sold to the farmers of the county at a saving of from $3 to $4 a bushel and 31 head of cattle were exchanged. A county exchange list is issued once a month. About a week before each of these issues all the notices listed in the previous issue are returned to the patrons. If the article is to be listed in the next exchange, these notices must be returned. A summary of the exchange is printed in quarter-page advertisements in each of the five county papers.

Arkansas Banks on County Agents.

That the business men and bankers of Arkansas believe that the presence of the county agent promotes general prosperity is shown by the way they get behind and push the extension work among the farmers. For this year's work 64 out of 75 counties raised $161,030, according to reports received by the States Relatiou Service of the United States Department of Agriculture. This is exclusive of State and Federal aid.

This amount was contributed from the county funds. All appropriations are made by the quorum courts, which are composed of the justices of the peace of each county. On their meeting day the bankers aud business men meet with them and urge liberal appropriations for extension work, arguing that any work that helps the farmers and their wives increases general prosperity. The sum of $96,480 was appropriated for man county agents and $53,260 for woman home demonstrators among the white population. For negro county agents and home dem onstrators $11,290 was appropriated.

This is believed to be a remarkabl record for any State.

Fraud-Order Work Extended.

One of the duties of the Postmaster General is to deny the use of the mails to persons, firms, and corporations making fraudulent representations. The drug division of the Bureau of Chemistry, United States Department of Agriculture, has been assisting the Post Office Department in prosecuting medical schemes and adulterated products that are exploited or marketed through the use of the mails. The cooperation has proved beneficial, and the chief of the bureau has directed the drug division to give more attention to this line of work.

Good Start in 1919 Tick Fight.

Cattle dippings in March of this year totaled 1,203,497, in comparison with 996,505 iu March, 1918, according to reports from the States infested by the cattle-fever tick to the Bureau of Animal Industry, United States Department of Agriculture. This means the best openiug of the dipping season since the fight against the parasite began in 1906, and indicates that a record amount of territory will be cleaned up this year. Dipping vats in operatiou numbered 29,255, in comparison with 22,879 at the opening last year, and more "canals to prosperity" are being built every day. Farmers and the general public in all infested areas are becoming fully awake to the menace of the parasite, and conditions are favorable to the effective prosecution of the work, the reports indicate.

Farm tractors propelled by gasoline or kerosene were used first for general farm work iu the northern part of the Great Plains.

While it is true that various factors contribute to increase or reduce the attendance at schools in given sections of the country, it is worthy of comment that in the States having a high percentage of improved roads a much larger percentage of rural students enrolled regularly attend the schools than in the States having a small percentage of improved roads.

Play Fair With Uncle Sam—He Won Your War. Invest in the Victory Liberty Loan.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. VI MAY 14, 1919 No. 41

CENTRAL EMPIRES WILL NEED MUCH AMERICAN FIELD SEED

Department of Agriculture Committee Reports Depletion of Supplies

Belgium Needs Oats, Clover, and Grass Seeds—Other Countries of Western Europe Can Supply Own Requirements

Dutch, Italian, and French dealers state that Germany and Austria-Hungary are practically out of field seeds and will have to depend for them on foreign sources for next year at least, according to representatives of the United States Department of Agriculture, who have returned from an investigation of field seeds in England, France, Belgium, Holland, and Italy.

For American Consideration

Foreign seedsmen anticipate a heavy trade with the central empires, and American dealers will have to take this fact into consideration in making their own plans for the future. The red-clover seed crop of 1918 was short in Italy as well as in France. Normally both of these countries export considerable quantities of red-clover seed. Italy exported to Hungary and the United States, and France exported chiefly to England and the United States. Because of the short crop of 1918, the Italian Government prohibited exports of red-clover seed, although some quantities were allowed to go to France. High prices in Italy would have restricted exports of red-clover seed to America even if they had been permitted.

There is no demand in Italy for American grass and clover seeds, because the Italians do not use the grasses extensively grown in the United States, and they produce enough seed of clovers and alfalfa for their own use and for export. Rye grass is their most important meadow grass. The balance of the meadow consists of wild grasses in combination with red and white clover and alfalfa. Recently the price of clover hay has been so high that much of the clover crop, which otherwise would have been saved for seed, was mowed.

The supply of seed oats, red-clover seed, and grass seeds is short in Belgium this spring. Some of these seeds could have been supplied from America if a request for such supplies had been made last fall. It is, of course, to late to export any American seeds to Belgium for the current season. Belgium live stock, however, will not suffer, because it has decreased to such an extent that there is plenty of old pasture for the remaining animals for the next year at least. Efforts are being made to establish an organized vegetable-seed industry in Belgium. The director of horticulture for Belgium expressed the hope that his country would be made self-supporting in the matter of seed supplies. The supplies of vegetable seed available at present are said to be ample for the use of Belgium this year in most cases. If any scarcity occurs, it probably can be supplied from the large stocks in France and Holland.

Expect Importations from Holland

As is widely known, Holland is one of the chief vegetable-seed producing sections, particularly of cabbage, cauliflower, turnip, spinach, and kale seed. It is expected that importations from Holland as soon as normal trade relations are reestablished will replenish the stocks of those varieties of cabbage and cauliflower that have been reported as low in the United States. In North Holland the cost of producing seed has increased at least 100 per cent during the war, chiefly because of higher wages. Therefore vegetable-seed prices are expected to remain higher than they were in 1914.

The only vegetable seed that Holland imports extensively from the United States is lettuce. England, France, and other European countries also buy lettuce seed from the United States, because it is grown cheaper and sells for less in California than it can be raised for abroad. During the prewar period Holland imported large quantities of American field seeds, most of which, however, were merely in transit to other countries,

(Continued on page 5.)

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DEPARTMENT HELPS TREASURY IN WORK FOR NATIONAL THRIFT

Series of Leaflets Give Suggestions for Wise Spending

Thoughtful Saving Aids Family Stability, Credit, and General Prosperity; Waste Lessens Individual and World Wealth

Uncle Sam wants his people to make thrift and saving—taught by the war—a permanent habit. To popularize wise spending, intelligent saving, and safe investment, the United States Treasury and the Department of Agriculture have prepared a series of leaflets which tell how to distribute incomes in what economists consider the best way. For the small family or the large the message in these leaflets is expected to prove helpful.

The result desired is that the American people shall spend freely, but think before they spend in order that they may get full values. These leaflets teach that wise spending involves weighing present needs and desires against future needs and desires, while intelligent saving and investment provide for future spending, whether to cope with rainy-day emergencies or to take advantage of sunny opportunities. Practice of these principles will make for family stability, increase individual credit and buying power and directly contribute to community and national wealth and prosperity.

What one home wastes is taken away from the Nation's wealth and makes all homes that much poorer, the first leaflet states, and in it are enumerated the things that household thrift demands.

Seven Steps Toward Saving

The seven steps which lead to saving, the second leaflet teaches, are "Know Your Needs," "Count Their Cost," "Study Your Spending," "Prepare a Plan," "Make Practice Follow Precept," "Keep Accounts," "Review Your Records," and "A 100 Per Cent Home." The experts

who have prepared this series advise you to climb these seven steps toward thrift if you wish to get the most out of your income, whether it is large or small.

This leaflet is devoted to the division of income. Your income must pay for food—adequate, nutritious, and appetizing; clothing—healthful, comfortable, suitable, and attractive; home—sanitary, convenient, and pleasant; operating expenses—fuel, light, and service; personal expenses—education, pleasure, and gifts; and saving—emergency and permanent.

What a Home Should Provide

Under the item labeled "Home" are the following points you are asked to consider: "Does the house provide comfort, enjoyment, and some privacy for each member of the family? Has it light, air, sunshine, and running water? Is it easy to work in and to keep clean? Have you thought about the colors of your walls and floors? Is your furniture chosen and arranged to make the whole family comfortable?"

"Your clothing," another leaflet states, "should supply you with the following things: Protection from cold, heat, moisture, and rough surfaces; freedom in movement, breathing and standing; beauty—you will get this by choosing materials, colors, and designs suited to you and your occupation; self-respect. Clothing which is appropriate, becoming, inconspicuous, clean, neat, and within our means, makes ourselves and our neighbors think well of us."

Savings Division to Promote Thrift

A savings division has been organized in the United States Treasury at Washington to assume national leadership in the campaign for thrift and to promote the sale of war savings stamps. It will be composed of economists, bankers, business men, educators, publicists, and those who have made a special study of savings in household or other fields. It will cooperate directly with the savings organizations of the Federal reserve districts and with all other Government agencies interested in promoting thrift. Efforts are to be made to induce the press to republish widely the material on the leaflets.

In short, it is planned to teach Americans that to save money by going without necessities is bad economy, but to waste anything lessens their wealth, the wealth of their country, and the wealth of the world.

The average value of unwashed wool a pound in Canada was 62 cents to producers in 1918 and 59 cents in 1917; washed, 80 cents in 1918 and 75 cents in 1917.

URGE USE OF FORAGE CROPS TO FEED LAMBS AND EWES

Sheep Specialists Point Out Profits in Good Grazing

Alternating Pasturage Advised to Keep Plants Growing and Prevent Worms; Grain Prepares Lambs for Early Marketing

Because of the importance of economical feeding in profitable sheep raising, the United States Department of Agriculture directs special attention to opportunities for growing forage crops as a feed for lambs and ewes.

The following general plan of supplying this class of feed is suggested by sheep specialists of the department. Early spring pasturages of wheat or rye may be used at the start. These provide succulent green feed appetizing to the ewes and lambs. Overpasturing, however, must be avoided when these crops are later to be used for grain. Where it is possible to keep the rye or wheat pasture about 1½ to 2 inches high, the lambs and ewes seem to relish it more and will consume larger amounts. Oats and Canadian field peas may be sown together early in the spring at the rate of 1½ bushels of field peas and 1½ bushels of oats to the acre. This crop should then be ready when it is time to take the flock off the rye or wheat.

FOREST-FIRE FORMULA

RULE 1.—Be sure your match is out. Break it in two before you throw it away.

RULE 2.—Don't throw away burning tobacco.

RULE 3.—Choose a safe place and make your camp fire small.

RULE 4.—Put out your fire with water and then cover it with earth.

RULE 5.—Don't make large brush fires. Choose a still day for burning, and plow furrows to protect adjacent woods.

Rape, another good forage crop, may be sown at the rate of 6 to 8 pounds an acre and will provide later pasturage, following the oats and Canadian field peas. In sections where soy beans and cowpeas grow satisfactorily, they furnish an excellent midsummer pasture. If sowed later they make a good forage crop in late summer and early fall. When sown in corn they serve as an excellent supplement to the corn for fattening lambs.

Well to Alternate Grazing

If pastured by alternating the grazing in different parts and not allowing any particular section to be too closely eaten, a field of soy beans may be used for a considerable time. When most of the leaves have been eaten, it is time to move to a fresh portion of the field so that the plants on the grazed part will have a chance to leaf again. In some sections it may be desirable to cut this growth and use it for hay, especially when other leguminous hays are not available.

It is good practice to sow rape at the last cultivation of corn. The lambs can then be turned into the cornfield in the fall and will feed upon the lower leaves of the corn and rape and make excellent gains.

Stomach Worms Controlled

Lambs not only make a rapid and cheap gain on forages of this kind, but a forage-crop system prevents, to a large extent, injury from stomach worms. It has been demonstrated that by changing lambs every two weeks to ground not previously grazed that season, stomach worms can be effectively controlled. Since this condition exists, it is better to have the pastures of a convenient size, so that the lambs and ewes will consume all the forage in a period of about two weeks and again be turned on a new pasture. This does not allow the use of a second growth. The ground can then be plowed and a second crop seeded to afford later forage crops.

Feeding Lambs for Early Market

Where lambs are to go to market an effort should be made to get them off early. Lambs make the best and cheapest gains during the first four months of their lives. A grain feed fed in a lamb creep arranged in the field will prove helpful in pushing the lambs along and keeping them in good condition. This feed should consist of corn, oats, and bran. Lambs should be fed all but no more than they will clean up each day. Never put clean feed into the trough where old feed remains.

Lambs weighing 60 to 75 pounds make the most desirable market offering. The reason is that lambs of this size dress out a desirable market carcass, which can be more readily handled by the butcher, in meeting the demands of his trade. Heavier lambs do not sell so readily, and when supplies are large there may be a small price discrimination in favor of lambs under 80 pounds.

Growers will find that by following a system of forage crops for rotation of pasturage to prevent stomach worms, and supplying grain feed in a lamb creep to keep the lambs gaining steadily, larger profits can be realized.

DAIRYING MEANS PROSPERITY UNDER COOPERATIVE SYSTEM

Dairy Community Created at Grove City, Pa., in Three Years

Creamery Plant Operated by United States Department of Agriculture as Part of Experimental and Demonstration Work

To make dairying mean more prosperity instead of drudgery has been the notable achievement in the Grove City community of Pennsylvania. Unprofitable methods with inability of local farmers to gain more than a meager living from the soil had distributed seeds of discouragement throughout the community.

Under such conditions the United States Department of Agriculture induced the business men and others of Grove City to establish a creamery. Built and equipped by home capital, this plant is operated by the department as a part of its experimental and demonstration work. In three years Grove City has developed into an advanced dairy community. The first day the creamery opened its doors 20 patrons marketed 78 pounds of butter fat. By June 30 of the same year the number of patrons had increased to 106, a year later to 338, the next year to 579, and at the end of the third year, or June 30, 1918, it was 614. But the increase in the income is even more remarkable. The first fiscal year, or from July 1, 1915, to June 30, 1916, inclusive, the gross income of the creamery was $82,432; the second year it had increased to $212,904, and the third year it was $375,596. Last year one of the Grove City banks increased its deposits $450,000, of which approximately one-third resulted directly from dairy farming improvement.

City Helping Country

The Grove City community has followed the principle that "In union there is strength," and at the present time is admirably organized for profitable results. The local commercial club of 200 members has been of great assistance in winning the confidence of the farmers, in making them feel at home, in entertaining them, and in strengthening the bonds between them and their town neighbors. The clubrooms are now used as headquarters by farmers and their families when they are in town, and 20 of the most progresive farmers are now members. Often the club has been active in obtaining help for the farmers during busy times, while occasionally the members themselves have assisted the farmers in urgent work.

The two local banks have supported the "better agriculture" movement, and one of them has aided in financing the purchase of pure-bred dairy sires and cows. It has brought in eight carloads of high-producing animals and distributed the cattle at cost among the farmers. In addition, it has loaned money for the purchase of better cattle and for general farm improvement. The bank publishes a monthly paper which circulates among the creamery patrons and deals with community development problems and other topics of interest. Each month it publishes the names of farmers receiving the largest checks from the creamery and the names of the owners of cows whose average production exceeds 40 pounds of butter fat a month. The lists stimulate friendly rivalry among dairymen and benefit the local industry.

More Good Cows Brought In

To-day Grove City is a region of profitable dairy cows, due to the intensive work of the home cow-testing association, which has worked for the shipping in of better dairy animals and the shipping out of low producers. Farmers have heeded the evidence of the milk scales and the Babcock test. One dairyman found that 9 of his 11 cows were "loafers." He immediately sold them to a local butcher and purchased profitable stock to take their places. The Grove City Cow Testing Association records for 1917 and 1918 show that it cost an average of $74 a cow to feed the 262 cows that completed a year's test—approximately $50 to feed the lowest producers and $97 for the cows whose average production was 400 pounds or more of butter fat a year. One cow in the 400-pound class yielded more income over cost of feed than an entire group of 25 cows that averaged only 100 pounds of fat a year.

Work of the Bull Association

Two cooperative bull associations—Jersey and Holstein-Friesian—have been organized since the development work began. Each of these organizations is divided into four sections or blocks, with one bull to each block. The Holstein-Friesian Bull Association consists of 25 farmers, who subscribed $75 each for the purchase of four registered Holstein sires of meritorious breeding. To avoid inbreeding, the sires are changed from one block to another every two years, and according to this plan the bulls now in use will be serviceable for the next eight years. Thus each member of the club gets the use of a fine sire while the organization is able to keep its bulls at a maintenance cost of about one-sixth of what it would be if each herd were headed by a separate bull. The Jersey Bull Association was organized along similar lines. This campaign for better breeding has brought about the establishment of more than 40 pure-bred herds in the community during the last year.

The Guernsey Breeders' Association at Grove City consists of 28 members, owning 71 registered Guernseys, each member owning either outright or jointly a carefully selected registered sire.

In the main, the dairy cattle in the community are free from tuberculosis; more than 100 herds have successfully passed two annual or three semiannual official tuberculin tests. As a result they have been included in the tuberculosis-free accredited herds listed by the United States Department of Agriculture.

Boys and Girls Working, Too

The Boys' and Girls' Pure Bred Dairy Cattle Club was organized more than a year ago with 53 members. In addition to the cattle club there are pig clubs, garden clubs, canning clubs, and a club recently organized under the direction of the county agent known as "The Young Farmer Club," in which eligibility to membership requires the winning of a prize in some "worth-while" contest.

In spite of the high price of building materials last year, 25 new silos have been built, while 57 old barns have been remodeled and equipped with such improvements as concrete floors, up-to-date stanchions, and better lighting and ventilating facilities. In the Grove City district dairy development has made such rapid progress that many dairymen have had to keep their cattle in barns not designed for such a purpose. However, using these old barns has allowed the dairymen to devote more of their capital in the purchase of high-producing cattle.

Another organization, known as the Grove City Federal and State Accredited Dairy Cattle Show and Sales Association, encourages the development of healthy herds and the exhibition and sale of dairy cattle. Each member must furnish the secretary-treasurer with an extended pedigree of all animals he offers for sale or exchange. Once a year the county holds a round-up picnic and dairy cattle show. Last year 1,500 people attended.

Example for Other Communities

The creamery field man aids the farmers in building silos, remodeling and rearranging their barns, tuberculin-testing their herds, detecting and disposing of undesirable cows.

Under the supervision of a qualified man, practically any farming community,

it is believed, can improve its organization, farming methods, market operations, and similar activities. Whenever such a community tackles the business of self-advancement energetically in the proper manner a spirit of confidence will prevail and work well begun will go forward to still further success.

The foregoing information comes from a recent publication of the United States Department of Agriculture, "How Dairying Built up a Community."

Wool Consumption Increases Following Decline Since Fall

Wool consumption, which declined sharply since November, took a jump in March over figures for February. During March manufacturers used about 34,000,000 pounds of wool, grease equivalent, an increase of 6,500,000 pounds compared to February of this year, but less than half of the wool used during March, 1918.

In March, 1919, manufacturers used 23,170,584 pounds of grease wool, 4,515,757 pounds of scoured wool, and 1,633,722 pounds of pulled wool, according to the Bureau of Markets, Department of Agriculture. Leading States, in the order of their consumption, were: Massachusetts, Pennsylvania, Rhode Island, New York, New Jersey, Connecticut, New Hampshire, Ohio, and Maine.

A new feature of the monthly consumption reports issued by the Bureau of Markets is the inclusion of figures on imports furnished by the Bureau of Foreign and Domestic Commerce. Imports during March, 1919, in pounds, were: Class I—unwashed 13,825,086, washed 563,538, and scoured 633,230; Class II—washed and unwashed 363,549; Class III—washed and unwashed 5,758,713, scoured 114,700.

Detailed monthly reports on wool consumption can be secured from the Bureau of Markets, United States Department of Agriculture, Washington, D. C.

CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for preparator in nematology, for both men and women, on June 18, 1919. A vacancy in the Bureau of Plant Industry, Department of Agriculture, at entrance salary ranging from $660 to $1,000 a year, will be filled from this examination. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Weather Bureau Aids Over-Ocean Flights; Meteorological Factors Are Discussed

When Columbus and his three caravels sailed westward on the first trans-Atlantic voyage, the great discoverer found that by keeping to the southward he was favored by winds that bore him away from the Old World and toward the Indies.

Now that Columbuses of the United States Navy are preparing to cross the Atlantic in the first journey by airplane—in three big seaplanes—they find that the winds that wafted Columbus are still blowing westward, making it impracticable in the present stage of aircraft development to follow the southerly route from America to Europe, even if the great distance were not prohibitive. But they find that farther north, in the latitude of Newfoundland and Ireland, the prevailing direction of the wind is from west to east, and that under good wind conditions they may cut three hours or more from the time that would be required to travel from Newfoundland to Ireland at airplane speed in still air. The same thing applies in an airplane journey from Newfoundland to Portugal by way of the Azores.

Wind is the one element of paramount importance to a successful trans-Atlantic flight, according to Prof. Charles F. Marvin, chief of the Weather Bureau, United States Department of Agriculture. The Weather Bureau, by direction of the Secretary of Agriculture and at the request of the Secretary of the Navy, is aiding the Navy in every possible way to make the first over-ocean journey a success. A friendly cooperation also exists with the meteorological services of Canada and Great Britain and aviators of other nations preparing to make this flight.

Reports from Europe and Ocean

As part of its work the Weather Bureau is using its daily reports from all its stations in the continental United States to give indications of the most favorable day for the long flight to begin; it has arranged to receive wireless and cable reports from observing stations on the west coast of Europe, from Spitzbergen and Iceland in the north to the Azores in the south; and other reports are to come by wireless from naval vessels, ranging in class from battleships to submarine chasers, posted on the bosom of the Atlantic. All these reports are to be compared, charted, and summarized in Washington by the official forecaster, who in this case will be Maj. E. H. Bowie, who was on duty as forecaster for the American Expeditionary Forces in France during the war. His forecasts and detailed advices concerning the meteorological conditions will be transmitted to Willis R. Gregg, a bureau meteorologist who has studied extensively the relation of weather conditions to trans-Atlantic airplane flights, and who has gone to Newfoundland, where the American planes are to take the air for overseas after flying from New York, and he is now receiving summaries of daily conditions. Mr. Gregg acts as the point of contact between the Weather Bureau and the naval aviators. He is equipped to tell them not only when no storm is approaching, but to indicate the successive directions toward which an airplane should be headed to keep to a desired course, and also to calculate the assistance that will be furnished by the winds.

Little to Fear from Storms

As far as storms go, the naval aviators have little to fear. When North America and the Atlantic are clear of great atmospheric disturbances, it is almost sure that an airplane could travel over the whole breadth of the ocean, from west to east, without encountering a storm. The reason for that is the eastward drift of the atmosphere, credited sometimes to the revolution of the earth and regarded as responsible for the invariable tendency of storms in northern latitudes to travel from west to east. A great storm in this country is likely to appear in Europe within a few days—a fact that was put to use during the war by meteorologists with the American Expeditionary Forces. Thus, if an airplane gets off from this continent in clear weather and with clear weather ahead, no storm developing after its departure is likely to catch it. On the other hand, an airplane traveling from Europe to America by the northern route would do so under the chance of running into a storm before reaching this side of the Atlantic. Practically all the cyclonic disturbances that move across the United States enter the North Atlantic Ocean slightly to the south of Newfoundland.

It is probable the epochal flight will be made at an altitude of from 1,000 to 2,000 feet—much less than the average maintained on long flights overland. A reason for this is seen in the belief of meteorologists that a trans-Atlantic aviator would not need to fly as high as would a transcontinental aviator in order to derive the greatest possible assist-

ance from the winds. The reason for their belief is that surface winds at sea are nearly twice as strong as those on land, and the increase with altitude over the sea is much less than over the land. The latter increase on this continent, as well as in Europe, is nearly 100 per cent in about 1,600 feet.

Flying Low Less Dangerous

Whatever the wiud direction, say the meteorologists, flying at low levels above the sea would be less daugerous than at similar levels above the land, because the air above the sea is less turbulent or "bumpy."

"Marine weather maps," said Mr. Gregg in a recent paper read before the Philosophical Society of Washington, "show that at an altitude of 500 to 1,000 meters (1,600 to 3,200 feet, approximately) conditions are favorable for an eastward trip approximately one-third of the time, the percentage being slightly greater along the northern than along the southern route. At greater altitudes the percentage of favorable days materially increases, especially aloug the northern route. For the westward trip the percentage of favorable days is so small as to make trans-Atlantic flight in this direction impracticable until the cruising radius of aircraft is increased to such an exteut that they are relatively independent of wind conditious.

"All things considered, conditions for an eastward flight are most favorable along the northern course; for a westward flight they are most favorable along the southern course; that is, the prevailing westerlies are less persistent along this course than farther north.

Little Choice in Season

"There seems to be little choice as to season, for, although the prevailing westerlies are stronger in winter than in summer, yet, on the other hand, stormy conditions are more prevalent in winter, and the net result is about an equal percentage of favorable days in the two seasons. Moreover, the greater fog percentage in summer just about offsets the greater percentage of cloudiness in winter. Fog is a disadvantage chiefly because of its interference in making observations with drift indicators. The Newfoundland fogs in general are of small vertical extent and do not extend far inland. They should not, therefore, prove a hindrance to landing, if the landing field is located some distance from the coast."

Near the Irish coast the percentage of days on which fog occurs varies from about 10 per cent in summer to 5 per cent in winter, in contrast to the Newfoundland average of 60 per cent in summer and 20 to 35 per cent in winter. Fogs rarely occur near the Azores or between them and Portugal.

The statements made by the meteorologists in relation to airplanes apply equally well to airships, they say. Airships, however, because of their greater capacity for fuel and their independence of motor power to sustain them, are capable of remaining in the air a relatively long time and are not so vitally dependent upon favorable wind conditions.

Airplane Compasses Lose Precision

Compasses have been found to lose much of their precision on airplanes, and on trans-Atlantic flights it is believed they would be somewhere near useless. The oscillation of the plane itself is a large deterrent factor, and others are the attraction of the motor or machine material for the needle and the impracticability of making corrections while making flights at high speeds. Under clear skies sextant observations make possible the correct determination of positions, but in cloudy weather the compass is the only guide unless the aviator can fly high enough to get above the clouds. It is believed necessary that trans-Atlantic airplanes, in the present stage of development, should be in constant touch with ships that could indicate positions by wireless. Developments in wireless have made it possible to tell the direction from which an air message is sent.

The difficulty of accurate flight would be greater if the airplane were aiming at a comparatively small group of islands, such as the Azores, instead of Ireland or the coast of Europe.

Prof. Marvin poiuts out that it would be quite possible for an aviator flying over the uniform surface of the ocean to turn his machine unconsciously and fly away from his object. Also, if his machine, making a hypothetical speed of 90 miles an hour, should run into a head wind of 90 miles an hour, he might stay indefinitely in the same position over the ocean. On land an aviator can tell whether a wind is aiding or retarding him, but over the changeless sea, unless there were ships within his vision, he would have little or nothing by which to gauge his progress.

Earth's Motion Deflects Airplane

Another factor the trans-Atlantic aviator must reckon with, Prof. Marvin says, is the deflective influence of the earth's rotation upon airplane flight. Objects moving freely over the earth's surface are deflected constantly to the right.

All the knowledge on this and other factors in the possession of the Weather Bureau and affecting the epochal undertaking has been placed at the disposal of the naval aviators. With the development of trans-Atlantic travel by airplane the Weather Bureau meteorologists hope there will be opportunity for thorough study of the meterological conditions affecting it.

"There is need," said Mr. Gregg, "for a comprehensive campaign of meteorological and aerological observations over the North Atlantic, in order that aviators may be given data for whose accuracy the meteorologist need not hesitate to vouch, instead of information based on so small a number of observations, particularly of free-air conditions, that the deductions are assumed and not proved."

CENTRAL EMPIRES WILL NEED MUCH AMERICAN FIELD SEED

(*Continued from page 1.*)

chiefly Germany. As a rule American field seeds are not used in Holland, because the majority of the hay consists of rye grass and red clover. The Dutch farmers do not like the American strain of red clover, because the plants are hairy. The best European strains of red clover are smooth and produce much better hay. On this account about the only use the Dutch farmers make of American red-clover seed is as a green-manuring crop, which they use probably as extensively as any other country. The recent price of red-clover seed in Holland has been at least 300 per cent more than prevailing prices during 1914.

No Opportunities in Holland

During the war the Dutch Government exercised strict control over the exportation of seed and temporarily suspended exports. The Government required that each seedsman furnish frequent statements concerning the seed he had on hand. In this way an accurate account was kept of the seed needed for domestic purposes, and export permits were granted when a surplus was available. According to figures furnished by the commercial attaché at the American legation at The Hague there were no exports or imports of seeds out of or into the Netherlands during 1916, 1917, and 1918. No opportunity is seen for American seedsmen to sell any quantity of field or vegetable seeds to Holland for domestic use. The Dutch field-seed dealers, however, anticipate a very active trade with Germany soon after the conclusion of peace, and it is probable that considerable quantities of American seeds will pass through Holland on their way to Germany.

ORGANIZATION NEEDED FOR DRAINING WET LANDS OF U. S.

Can Be Done Best by Public or Quasi-Public Organizations

Department Says Land Companies Should Not Be Permitted to Sell Until Drainage Systems Are Practically Complete

Every State in the Union has a portion of the swamp and wet lands that for the entire country have an aggregate area of 102,800,000 acres—larger than Iowa, Illinois, and Indiana combined, and three-fourths as large as France. The agricultural value of these lands varies considerably, but specialists of the United States Department of Agriculture believe that large areas, if properly drained and cleared by public or private cooperation, could be transformed into productive farms.

Much of the swamp land is wet only after heavy rain and usually supports heavy vegetation. Lands overflowed periodically usually are in the flood plain of streams, the soils being generally of alluvial origin. In addition to this land, however, considerable areas of cleared lands along streams are now cultivated, but greatly need improved drainage and protection from overflow. Small tracts frequently can be reclaimed by the construction of small ditches or a system of tile drainage. On the larger tracts it usually is necessary to construct large ditches that will serve as outlets for the drainage of the entire district, and these must be supplemented by sufficient lateral ditches to afford outlets for the farm drains.

Reclaimed Lands Usually Fertile

Generally the reclaimed lands, after drainage, yield abundant and profitable crops of good quality, some of the soils being particularly adapted to special crops, such as celery, onions, and cabbage. Much of the celery in the United States is produced on drained marsh lands. Most of this land, however, is equally well adapted to the production of the staple crops, such as corn, potatoes, wheat, cotton, and truck crops. Some of these reclaimed soils have been in cultivation for more than 100 years and are still producing good crops.

As a rule, the State drainage laws provide that on petition of a certain percentage of the landowners, or owners of a certain percentage of the lands within the proposed drainage district, an engineer will be appointed to examine the lands and determine whether they can be drained. If his report is favorable, the district is established, surveys made, and the necessary improvement planned and constructed. The district is a quasi-public corporation, which has the right to construct the necessary drains and do any act required for the reclamation or protection of the land. It has the right of eminent domain, can borrow money, and issue bonds. The special benefit that will accrue to each part of the land from the construction of the improvements is determined, and the costs are prorated to the several tracts on the basis of the benefits received, the lands that will receive the greatest benefit paying the highest acre tax for the construction of the improvements. The district has the power to levy assessments and to pay for the construction of the improvements. These are liens on the land secondary only to the State and county taxes. Usually bonds are sold to provide funds to construct the improvements, and the landowners have the privilege of paying in installments. These bonds have a good reputation with investment bankers and are popular with conservative investors.

Some Instances of Work

There are more than 300 drainage districts in one county in Iowa, which is said to have spent more than $10,000,000 on drainage improvements. During the 20 years from 1898 to 1917, Michigan spent $18,859,576 for drainage improvements. In North Carolina, South Carolina, Georgia, Florida, Mississippi, Tennessee, Louisiana, Arkansas, and Missouri, State laws have been passed concerning land drainage, and over 7,000,000 acres have been included in drainage districts, where the improvements planned either have been constructed or now are under way. The Little River drainage district in Missouri, containing 555,000 acres, which is more than 90 per cent completed; the Cypress Creek district in Arkansas, containing 300,000 acres, fully 40 per cent completed; the Bogue Phalia district in Bolivar County, Miss., containing 140,250 acres, which was completed several years ago; and the Bogue Phalia district in Washington County, Miss., containing 150,000 acres, which has been completed recently, are some of the leading large-scale drainage projects.

It is relatively simple to rid a prairie country of surplus water and to subdue the lands for cultivated purposes as soon as they are drained. However, in the eastern United States, with the exception of the Florida Everglades, the wet prairie lands of southern Louisiana, and the lands along the Gulf coast in Texas, there are no large tracts of unsettled, unreclaimed lands needing drainage that are not covered with timber, which must be cleared away before the lands are available for cultivation.

Clearing Offers Obstacles

Often the clearing is more expensive than the drainage, and at best is a slow and laborious process. Hence the rate of development of these lands is slow. On the prairie lands of Iowa and Illinois a man with three horses could break from 2½ to 3 acres per day, and this land could be planted to corn or flax the year it was plowed. On heavily timbered lands, unless conditions are unusual, it will require more than a month's work for one man to clear an acre.

General experience has been that the rate of development of timbered swamp lands drained in large tracts has been slow after drainage. The only notable exceptions to this are the black lands of southern North Carolina, where, due to peculiar soil conditions, clearing can be done rapidly and at low acre cost. Where the drainage district is located in a well-settled territory, the rate of development is more rapid. On many projects, where the reclaimed land consists of bottom lands, which often are the most fertile in the district, settlement and cultivation have progressed rapidly. Information recently was collected by the United States Department of Agriculture in regard to 20 drainage districts in eastern North Carolina. These districts cover an area of 258,425 acres, of which 48,600 acres were cultivated prior to drainage. Since the lands have been drained 32,600 acres have been cleared and placed under cultivation, making a total area of 81,200 acres now under the plow in these districts. Of the area placed under cultivation since the lands were drained, 12,000 acres were located in one district of 16,000 acres, where an active selling and development campaign has been conducted by the persons owning the land.

Clearing Needs Cooperation

Collective action is generally needed for the successful clearing of lands. Some companies owning water-logged land have agreed to clear the lands for the purchaser for a certain charge to the acre or on a percentage basis, and in some instances this plan has worked out satisfactorily. At present, however, there is some need for a plan by which the work of clearing would be conducted by some public or quasi-public organization. One method by which this can be accomplished would be to broaden the powers of the drainage districts so that they could clear lands for the settlers, or a separate organization somewhat similar to the drainage district organization could be provided for the purpose of clear-

ing land. The cost of clearing in each instance would be charged against the land cleared. An organization of this character should be delegated with the powers usually given to a corporation. The important advantage of such organization would be that it could afford to purchase powerful machinery which the individual farmer could not afford to buy. The salvage from clearing operations on the land, in the form of ties, posts, poles, logs, pulp wood, firewood, and so on, would be available in large quantities, and suitable machinery for working up this salvage economically could be provided. The output would be large enough to be sold in carload lots.

The organization should be authorized to borrow money and to issue bonds, so that the cost of the work could be spread over a period of years. Such an organization doubtless could borrow money on better terms than individuals. On a large project, after organization and experience, work should become more efficient and there would be a material reduction in the cost. Experience with drainage districts indicates that as soon as clearing operations are undertaken on a large scale instead of piecemeal the cost will fall.

Land companies should not be permitted to sell or to settle lands that are being drained until adequate drainage works are practically completed, the department says. Many worthy settlers have lost their all by settling on wet or swamp lands before they were drained and because they did not understand the difficulties of preparing such land for farming purposes.

Green Clover Worm Harmful to Alfalfa; Timely Cutting, Clean Culture Control

Serious damage to alfalfa by the green clover worm has been reported to the United States Department of Agriculture from several parts of the eastern half of the United States, where this pest is distributed generally. Although for many years it has been known to occur commonly on clover and has received its popular name from this fact, its injury to this crop has rarely been sufficiently serious to justify control measures. It usually confines its attacks to leguminous crops, such as alfalfa, clover, soy beans, cowpeas, and vetch, but sometimes feeds on strawberries and blackberry plants and some common weeds.

Timely Cutting Recommended

The best control measure, as recommended in Farmers' Bulletin 982 of the United States Department of Agriculture, consists in timely cutting of the alfalfa crop, so as to remove the food supply when the caterpillars of this insect are most abundant. Clean culture is also recommended, and when outbreaks are particularly bad the use of the hopperdozer is advisable.

There are three or four generations of the green clover worm a season, according to the bulletin, which allows ample time for the insect to increase greatly in a summer. The caterpillars are killed in considerable numbers by natural insect enemies, but this method of control can not be relied upon for protection of the alfalfa crop. The alfalfa should be mowed when the insect is in the caterpillar or worm stage—from ten days to three weeks after the time of the appearance of the moths in great abundance. To insure success the field should be left as clean and bare as possible in order to remove the food supply and any shelter protecting them from the direct rays of the sun, which hastens their destruction.

If these measures can not be carried out without injury to the alfalfa, either from premature cutting or too prolonged delay, wait until the alfalfa is ready for another cutting. It ought to be possible, however, before the summer is passed, to clear the fields of this insect in this manner.

In the Eastern States premature cutting often results in permanent injury to alfalfa, especially while it is young, and for this reason the cutting of this crop much in advance of the normal period is not recommended.

As this caterpillar feeds on many different plants, ditch banks and fence rows should be kept free from weeds.

The caterpillars have been caught readily by dragging a field with a hopperdozer, such as is used for grasshopper outbreaks. It does not hurt the alfalfa when not used to excess, and will catch many injurious insects.

Carpet Grass Gives Good Grazing in Southern States

Petit Gazon—the Creole name for carpet grass—is a perennial creeping grass, prolific in the coastal plain belt from southern Virginia to Texas. It forms a dense, close turf. Carpet grass, native to the West Indies, prospers particularly well on sandy or sandy loam soil where the moisture is near to the surface most of the year. The grass is of dual utility, as it will yield a seed crop even during the period when it is grazed to capacity. This is explained by the fact that the live stock feed principally on the basal leaves, while the slender flower stems are allowed to mature unmolested.

In the section where carpet grass predominates it excels all other perennial grasses as a permanent pasture. It continues growing throughout most of the year, being damaged only during periods of severe drought or of heavy frost. In order to maintain the pastures in good condition heavy grazing is necessary, and alternate grazing of two fields is preferable to continuous grazing of a single field. Under favorable conditions carpet grass will support one head of live stock to 2 acres, being about equal in carrying capacity to bluegrass. Lespedeza, or Japan clover, succeeds very well when grown in mixture with carpet grass, while Augusta or narrow-leaf vetch is also valuable in a meadow mixture with carpet grass.

For maximum development carpet grass requires abundant heat and moisture, and where these conditions are satisfied it furnishes valuable pasturage from May until November, or in the extreme South even longer. During cold weather it makes little growth. Where a field of carpet grass is allowed to grow tall in the fall cattle will graze with great relish on the dead tops during the winter.

Although at present commercial seed in quantity is seldom obtainable, carpet grass may be sown if necessary by mowing the grass after the seed has matured and scattering the straw with the seed over the field where it is desired to sow the grass. If conditions are favorable to carpet grass it is sure to possess the land, provided the grazing is heavy enough to keep down the weeds and taller grasses.

For use on lawns carpet grass may be propagated by sets or pieces of sod. To obtain a good sod the land should be well prepared to a depth of 6 to 8 inches and generously fertilized with 20 or more tons of well-rotted stable manure to the acre. Where necessary, from 500 to 1,000 pounds per acre of high-grade supplementary fertilizer may also be applied. The carpet-grass plants should be set about 12 inches apart each way. In planting small lawns it is usually best to put out the sets with the trowel or some other hand tool, while on large lawns it is more economical to plow the land and drop the sets or pieces of sod the proper distance apart in the furrows. The land should be rolled after setting carpet grass in order to press the loose soil close around the plants.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

BETTER-POULTRY DRIVE IS ELIMINATING MONGREL FOWL

It will not be long before the owner of a common mongrel flock will apologize for its existence. This is the opinion of the poultry-extension worker of the United States Department of Agriculture, who is a leader in the campaign for more and better poultry on farms in south and southwestern Arkansas. In many parts of Arkansas the importance of better poultry and more efficient management is being recognized by progressive business men, commercial organizations, bankers, and others, and they are active in their moral and financial support in cooperating with the Government and State extension forces in their efforts to convince the farmer that standard-bred poultry properly managed is a paying industry, and that the old barnyard mongrel hen must get out of the way for standard-bred, uniform flocks.

The county agent of Drew County has placed 50 pens of one male and four females each of pure-bred Barred Plymouth Rock and Rhode Island Reds on 50 farms, in charge of a boy and girl poultry-club member. The Monticello Chamber of Commerce and the banks of Monticello have advanced the money to purchase these pure-bred fowls and have assisted in their distribution. In addition to the 50 pens of chickens, over 100 sittings of pure-bred hatching eggs have been secured for the club boys and girls. The farm and home demonstration agents of Ashley, Union, and Desha Counties are busy with poultry-club work on farms and in the organization of poultry clubs. In each of these counties an effort is being made to double last year's poultry-club enrollments.

On March 12 the Southwestern Arkansas Poultry Association was organized at Magnolia with 18 charter members. It is reported that practically every business man in the town will become a member and lend his influence and support for more and better poultry. Plans have been made to hold the State poultry show at Magnolia November 25 to 28, where the finest aristocrats of the barnyard will be on display competing for the coveted American Poultry Association gold medal offered to only one association in each State.

LESS IDLE WOOL MACHINERY SHOWN IN APRIL 1 REPORT

Wool machinery in operation on April 1, 1919, showed an increase for the first time this year in the monthly active and idle wool machinery report issued by the Bureau of Markets, Department of Agriculture. There were 10 per cent fewer wide looms idle, 3.5 per cent fewer narrow looms idle, and over 4 per cent fewer carpet looms idle on April 1 than on March 1.

Decreases in idle woolen cards and spindles and worsted combs and spindles are also shown. Idle machinery on April 1 expressed in percentages was: Wide looms, 48.4; narrow looms, 38.9; carpet looms, 57.1; woolen cards, 26.5; woolen spindles, 28.4; worsted combs, 34.2; and worsted spindles, 36.1.

The report shows very few machines working on Government orders, the percentages ranging from 0.3 to 2.2, which is a decrease from March 1 of this year. A decrease in the amount of machinery reported as running 40 hours or less a week is shown, the range being from 1 to 12 per cent on April 1 compared to a range of 3 to 17 per cent on March 1.

GRAIN SHIPPERS CAN HELP ERADICATE WEEVILS IN CORN

The grain shipper in the Southern States has to contend with one problem peculiar to that region which is beyond his control. Yet he can indirectly exert an influence toward its eradication. The problem is weevils in corn. While the matter rests primarily with the farmer, and while he is a heavier loser than the shipper, the business of the latter is handicapped.

Against the increase of live weevils in corn the shipper can use only precautionary measures while the grain is in his elevator or in transit after shipment. The aim should be to destroy them before the grain is shipped. When this is not done, the weevils may increase enormously in hot weather, should the car be delayed in transit or not be unloaded promptly on its arrival at the terminal market.

If the grain, when inspected at the terminal market, is found to be "infested with live weevils or other insects injurious to stored grain," it will be graded sample grade under the application of the Federal grades. Corn shipped as No. 3, for instance, might easily fall to sample grade because of its being infested with live weevils.

A point that the grain shipper must consider is that the corn may go into storage on its arrival at a terminal market. No terminal elevator company will put corn containing live weevils into its bins unless intending to treat the grain at once in order to kill the weevils.

While the grain dealer can destroy the weevils in his elevator or warehouse, this does not affect the source of supply, which is on the farm.

It has been estimated that weevils cause an average annual loss of 10 per cent of the corn crop in the Southern States. This loss, it is declared by the Bureau of Entomology of the United States Department of Agriculture, can be prevented. The control of weevils, it is said, is simple. It is discussed at length in Farmers' Bulletin No. 1029 of the United States Department of Agriculture. Every grain dealer should send for a copy.

It is obvious, says the Department of Agriculture, that the grain dealer's interests are identical with the farmer's in the matter of the eradication of the weevil. Therefore the grain dealer should join the farmer in a fight against the pest, for indirectly—and not very indirectly at that—this would help his own business.

WHAT BIG HOLDINGS MEAN

When the United States Department of Agriculture, through the Bureau of Markets, reports that the cold-storage holdings of all kinds of meat and meat products, including lard, amount to hundreds of millions of pounds, perhaps considerably over a billion pounds, the opinion is formed that there is much hoarding. Stocks in cold storage were large at the time of the report for January 1, 1919, and their total was 1,296,000,000 pounds of meat and meat products. At the average rate of consumption for the United States in 1918 this quantity of meat food, enormous though it may seem, was after all sufficient to last the United States for only 23 days if no other meat were eaten.

TICK THOROUGHLY TROUNCED IN "FIRST ROUND" THIS YEAR

March Sets New Record in Dipping Out Cattle Parasites

Continued Vigorous Attacks Through Season Expected to Free Great Amount of Quarantined Territory; More Vats Working

If the annual battle against the cattle fever tick can be compared to a boxing match of nine rounds—each month from March to December being a round—it is true that the tick got a thorough trouncing in the first round and the bell rang with the parasite figuratively hanging over the ropes.

March of this year brought more dippings of cattle for the tick than were recorded in any other March since the Federal and State governments began to fight the parasite in 1906. According to reports from all tick-infested States received and compiled by the Bureau of Animal Industry, United States Department of Agriculture, 1,203,497 cattle went through "the canals to prosperity" in March, 1919. This compares with 996,505 in March, 1918, and 720,552 in March, 1917.

They "Dipped in March"

This year's results came from an effort to "Dip that tick in March," with the object of preventing, so far as possible, the reproduction of the parasite. The ticks that were killed in March will produce no thousands and millions of descendants to suck cattle blood all summer. With the flying start in March and with continued vigorous attacks through the dipping season, it is believed that the tick eradicators have good chances of reaching their aim of cleaning up 90,000 more square miles of territory this year—more than ever has been released in one year from the Federal quarantine against the pest.

Healthy increases in the number of dipping vats available for use also are shown by reports to the bureau. In March, 1917, there were 15,765 vats, and in March, 1918, there were 22,879. This year there were 29,255.

Reports from States

A summary of the State reports shows that Alabama, with 6,230 vats, had 143,384 dippings in March; Arkansas, 2,301 vats, 13,776 dippings; Florida, 1,114 vats, 94,905 dippings; Georgia, 1,220 vats, 182,704 dippings; Louisiana, 4,459 vats, 253,129 dippings; Mississippi, 5,553 vats, 128,703 dippings; Oklahoma, 1,053 vats, 44,938 dippings; South Carolina, 801 vats, 1,447 dippings; north Texas, 4,905 vats, 273,937 dippings; south Texas, 1,220 vats, 66,574 dippings. Preliminary and reorganization work was conducted in North Carolina.

Ample provision has been made in every State for dipping vats, and an adequate supply of dipping materials has been distributed to the counties that will likely need them this season. Satisfactory progress in constructing vats and in preparing the dipping solution was made despite excessive rains.

Progress in Texas

In Texas, which has the largest amount of infested territory, encouraging progress is reported from Zone No. 1, which includes the territory in which eradication work is to be pushed most vigorously this year. Nearly all the counties in Zone No. 1 have made appropriations for the work, and construction of dipping vats is being pushed as rapidly as possible. It is believed that the general dipping of cattle every two weeks will be conducted in nearly all of Zone No. 1 during the present year.

The Oklahoma State Legislature, by making a special appropriation of $40,000, assisted several counties in the southeast corner of the State, which seemed unable to raise funds with which to carry on county work. With this assistance it is believed that Oklahoma is now in a position to get rid of the tick by the end of 1920.

Arkansas "On the Job"

The Arkansas Legislature recently appropriated $100,000 for tick eradication in that State, and, with the large force of Federal, State, and county employees now at work, it is believed that all of the State, with the exception of seven or eight counties, will be released from quarantine next December 1.

The Louisiana forces seem determined to wind up the tick fight this year, and the indications are that they will be successful.

In Mississippi, where final clean-up work is being conducted following the release of the State from Federal quarantine, the courts recently decided that the State laws providing for State quarantines are legal, and it is believed that the final work in Mississippi will be successful during the present year.

State-Wide Law in Alabama

As a result of the new State-wide tick-eradication law in Alabama it is hoped that the entire State will be released from Federal quarantine by next December. The law requires all county commissioners' courts in tick-infested counties to provide means for dipping and to require the dipping of cattle every two weeks between April 1 and December 1.

Systematic work is being conducted in 22 counties in Georgia, giving ground for hope that these counties will be released from quarantine at the end of the dipping season. The State-wide law enacted by the Georgia Legislature at its 1918 session becomes effective in December of this year, and 1920 may be the last year of the tick's residence in that State.

Working in Florida

In Florida it will be necessary to conduct eradication work in units composed of several counties, and for this reason more time is required to construct dipping vats and make arrangements for systematic work. The people of Florida, however, are alive to the necessity for tick eradication, and the State cooperation given to the Federal Government makes it seem certain that Florida, despite the great area still under quarantine, will not be the last State inhabited by the tick.

In North Carolina the eradication work is being reorganized with encouraging prospects for an early clean-up. Final "mopping-up" work is being conducted in South Carolina, from which the Federal quarantine was removed last year.

Inyo National Forest Loses 104,713 Acres in Changes

The President has signed a proclamation eliminating 104,713 acres from the Inyo National Forest in California and Nevada. The boundary changes were recommended by the Secretary of Agriculture in consequence of the land classification of this forest made by the Forest Service.

A number of scattered areas are involved. A solid block of about 15,000 acres in Nevada includes the Magruder and Palmetto Mountains. The land has little value and is similar to thousands of acres of wooded mountains which surround it on all sides. The pinon and juniper timber was not found of sufficient importance to warrant holding the lands within the forest.

The Adobe Meadows area of more than 23,000 acres was eliminated at the extreme north end of the forest in California. This land is located in Adobe Valley and on the mountain slopes to the west and south, with an elevation varying from 6,500 to 9,400 feet. It is mostly either brush or grass land and has no living streams of water.

Over 4,600 acres are eliminated in various tracts along the west side of Owen Valley in California. About one-third of the land is sufficiently level to cultivate. The new forest boundary is placed as nearly as possible along the foot of the steep range.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

County Agent Increases Price Of Hogs—Community Shipping

County agents not only show farmers how to grow more live stock and bigger crops, but show them how to get better prices. A field agent of the States Relations Service of the United States Department of Agriculture reports that the county agent of Faulkner County, Ark., helped the farmers to get from 2 to 5 cents a pound more for their hogs.

Here is the county agent's plan which worked, as outlined at a meeting of the farmers and bankers. It was agreed that the bankers were to finance cooperative live-stock shipments to a central market. This they gladly agreed to do. A day was named for a shipment of hogs. Every farmer in the county was notified by mail or telephone. On the day set the farmer, with 1 hog or 10, brought his porkers into town. Each farmer's hogs were marked so that they could be separated when they reached the market.

A man was sent to market with the carload of hogs. He had a record of the markings and ownership of every hog aboard. Each farmer's hogs were sold separately and records kept. On settling up accounts each farmer simply paid his share of the marketing expenses, which the bankers had advanced, according to the number of hogs he had shipped.

Very few of the farmers ever had enough hogs ready for market at one time to make a carload; hence they had previously sold to the local buyer, who offered considerably less than the central market price. By making up cooperative shipments the farmers netted 2 to 5 cents a pound more for their hogs. Faulkner County farmers have sold six carloads of hogs by the cooperative plan recently, and now the cooperative shipping association on a regular and permanent basis is well under way.

PLAY WRITTEN BY COUNTY AGENT

Pittsylvania County, Va., has a play of its owu—written by its county agent. The cast is composed of local agricultural club members. In every place where "The Conversion of Pa" has been presented this rural play has drawn record-breaking audiences. "Pa" is a conservative farmer, with a progressive son named Willie. The county where they live hires an agent—a proceeding which excites "Pa's" scorn and derision, and he flatly refuses to let his son join the boys' corn club, which the agent organizes. The means taken to convince "Pa" that the work of the county agent is valuable, and his subsequent change of heart, form the plot of this little farm drama with a real country atmosphere.

FARMERS' WEEK DURING SUMMER AT LOUISIANA STATE COLLEGE

This year the College of Agriculture of Louisiana State University will depart from its regular custom and that of other State agricultural colleges and hold its annual short course, or farmers' week, in the summer—July 31 to August 8—rather than the winter. It is believed that farmers will be better able to leave their farm work in August than in January. The university dormitories will be unoccupied in August and will be placed at the disposal of the farmers without cost to them. There will ordinarily be less interference with the work of farmers' week because of bad weather, especially in the tractor demonstrations, which are an important feature. The plots at the experiment station will have growing crops on them, which will give an opportunity for the study of the different varieties, the results of fertilizer treatments, the effects of crop rotations, etc.

A general meeting of the live-stock interests of the State will be held August 6 to 8, in connection with Farmers' Week. Live-stock auction sales have been planned for the meeting.

PROOF THAT COOPERATION PAYS

When the farmers of Madison County, Fla., sold a carload of sweet potatoes cooperatively and by so doing saved $113.50 they began to realize the benefits of selling their produce in this way. The county agent has been showing them how to get orders for a number of other cars of potatoes and the cooperative plan is growing in every part of the county. The agent hopes before long to have a good cooperative organization among the farmers for buying and selling all farm produce and equipment cooperatively.

Small Farmers Pleased With Cooperative Shipping System

Hog raisers in many parts of the South who do not raise enough animals to ship in carload lots, but who can combine with their neighbors in shipping, need no longer sell their porkers on the local market, guess at weights and values, and finally accept whatever the local buyer chooses to offer. Cooperative carload shipments to central markets where the highest prices are paid are rapidly increasing, and the satisfactory prices obtained are expected to bring a decided increase in the swine industry in many parts of the South. Agricultural agents in many Louisiana parishes are encouraging cooperative shipments of hogs, and report that such sales have been uniformly satisfactory, often commanding several cents a pound above the local market prices.

Webster Parish recently shipped its seventh car since last September. A carload of hogs owned by 26 farmers in Washington Parish was shipped under the supervision of the agent, and it was found, after deducting all expenses, the returns totaled $420 above local prices offered. The West Feliciana Parish agent reports a cooperative shipment of 100 hogs. The best animals were sold as feeders at $16.25 a hundred pounds. The best local offers had been from 8 to 10 cents. The net returns on a carload of 78 hogs shipped by the East Baton Rouge Parish amounted to $2,160.16.

BETTER STOCK AND CROPS IS MOTTO

Better stock and better crop yields is the motto of the county agent of Fairfield County, S. C. In carrying out this purpose he is waging campaigns for the importation into the county of more pure-bred bulls and for cooperative buying and home mixing of fertilizers to stimulate crop yields. He has already assisted farmers in ordering a number of pure-bred bulls and hopes to get more of them into the county this year than ever before. He has demonstrated to the farmers of the county how to place cooperative orders for fertilizers. Two hundred and seventy tons of 16 per cent acid phosphate was ordered by farmers

cooperatively with some saving of money. Carrying out the same plan the York county agent helped farmers of his county to save $90 on one cooperative order.

TICK ERADICATION BRINGS GOOD CATTLE

Evidence that good cattle follow on the heels of tick eradication is shown in a report of the agricultural agent of Tangipahoa Parish, La. Cattle-tick eradication has already borne good fruit by the improvement of several herds of dairy cattle, says the report, and has resulted in the recent importation from Iowa of 32 Holstein and 4 Jersey cows.

BREEDERS ORGANIZE IN TWO COUNTIES

Through the efforts of local county agents two Iowa counties, Boone and Osceola, have recently formed live-stock breeders' associations. In the Boone County organization, started early in March, 150 pure-bred live-stock breeders became members. The organization was established as a division of the farm bureau, with the county agent as secretary. In Osceola County, where the organization was started in February, breeders of different kinds of live stock are included in the membership, each breed of hogs, dairy cattle, and beef cattle having a breeder representative on the board of directors.

SAFE FARMING PROGRAM FAVORED

Letters from county agents in South Carolina are full of cheering news about the progress of the movement to substitute a safe farming program for what they term the cotton-crazy practice of the past. The agents recommend a well-rounded, diversified farming plan, which is safer than the one-crop practice, and which will enable the South to feed itself. Many agents have circulated pledge cards among the farmers asking them to plant more food and feed crops and to reduce their cotton acreage if necessary. One agent writes, "Practically every farmer I have talked to is in favor of the pledge." Another says, "Receiving hearty cooperation of farmers and business men throughout the county." Still another reports, "At least 90 per cent of the farmers are signing the pledge."

Sheep raising does not require expensive equipment or heavy labor, but does require study and continuous attention.

Strawberries Popular Small-Fruit Crop; How to Grow Them in Eastern States

Many home gardens in the eastern United States have a patch of strawberries. They are the most popular of small fruits, the most widely grown of any, and are particularly adapted to the home garden, as they ripen earlier than other cultivated fruits, and enough to supply an ordinary family can be grown on a small area. Directions for growing, harvesting, and utilizing strawberries in the eastern United States are given in Farmers' Bulletin 1028, just published by the United States Department of Agriculture. The area to which this bulletin applies includes in general the humid parts of the eastern half of the United States, except a narrow strip along the South Atlantic and Gulf coasts, where the elevation is below 500 feet.

In value the strawberry crop in the United States is surpassed among fruits only by the apple, peach, and grape. The value of the crop, according to the last census, was $125 an acre, as compared to an average value of about $15 an acre for wheat and corn. It is a much more intensive crop than the grains and should be treated as such.

When raised in the home garden, varieties which have the best dessert quality and ripen during a long season or in succession, without reference to their ability to stand long shipments, are desired. Market gardeners also raise strawberries under intensive methods of culture, and since they are located near the markets in which their crops are sold, they are not interested primarily in the shipping quality of the varieties. Truck growers who are more interested in shipping to distant markets should give consideration to the shipping as well as the dessert quality of the varieties they grow.

Location Should Be Elevated

In localities subject to late spring frost a site for strawberries should be somewhat elevated, as cold air settles in low places and frosts occur there more frequently than on the elevated spots. Strawberries thrive best on soil which is naturally moist but not wet. Plants on wet soil usually make very little growth in the summer and are likely to be killed when the ground freezes in the winter. Therefore the site chosen for strawberries should be well drained. Ordinarily a site having a gradual rather than a steep sloop should be selected. By choosing different slopes it is possible to vary the period of ripening several days, as the berries having a southern exposure will ripen earlier than those located on a cooler northern slope.

Strawberries not only have a wide climatic adaptation but may be grown successfully upon almost any type of soil, from coarse sand to heavy clay, provided it is well supplied with moisture and at the same time well drained. When early fruit is desired, sandy soil is often chosen, since the berries ripen somewhat earlier than on clay soil, other conditions being the same, though heavy yields can be secured on either type of soil. All soils for strawberries should be well supplied with humus.

Well-Prepared Soil Necessary

The preparation of the soil for strawberries should begin usually at least two years before the plants are to be set, or the plants should be set in soil which has received preparation in growing other cultivated crops. Newly plowed sod land should not be used, because the grass roots may prove objectionable and because of the danger of injury to the plants from white grubs. The land must also be freed of quack grass and any other seriously persistent weeds. If the soil is deficient in humus a green-manure crop, preferably a legume, should be grown, or stable manure should be applied.

Plants may be set at any time in the spring or summer when moisture conditions are favorable. These are usually best in early spring, and most of the planting in the eastern United States is done at that season. Where there is a continuous covering of snow in the winter, which gives the plants protection, planting can be done in the autumn, but where this is lacking and alternate freezing and thawing occur the planting should be done in the spring, unless some protection, such as a mulch, is given.

Setting the plants so that the crowns are even with the surface of the ground after the soil has been packed about the roots, and making the soil very firm about the plant, are important. If the soil is not properly firmed about the roots air gets to them, and they are likely to dry out, resulting in a feeble growth or none at all. Two systems of training strawberries are in general use—the hill system and the matted-row system. Under the former the plants are set 6 to 24 inches apart in rows from 3 to 3½ feet distant. The Chesapeake, Clark, and Marshall are more frequently grown under this system. Under the matted-row system the plants are set in rows from 3 to 5 feet apart, and the runners are

allowed to fill a space a few inches on either side of the row, thus making a solid mass of plants. The Dunlap, Gandy, and Aroma, varieties which make a large number of runners, are rarely grown in other than matted rows.

Flower stems usually appear on strawberry plants soon after they are set. Until the plants become firmly established after transplanting, the production of fruit is a severe drain on their vitality, and for this reason the flower stems should be removed as they appear during the first summer's growth. Under the hill system of culture the runners should also be cut whenever they appear throughout the first summer. It is necessary to till the newly set strawberry plants frequently during the early part of the season, in order to conserve moisture, and later in the season if it is desired to develop runners. Every effort should be made to keep out weeds, as they take the moisture needed by the plants and interfere with the proper pollination of the blossoms.

STRAWBERRIES IN THE WEST OFTEN DEMAND IRRIGATION

Strawberries must have an ample supply of moisture not only during the season of bearing fruit but also throughout the growing season. For this reason irrigation is necessary to make the crop reasonably sure in most sections of the western United States. Cultural methods for growing strawberries in this section are described in Farmers' Bulletin 1027, just published by the United States Department of Agriculture.

As strawberries have a shallow root system, the surface soil must be kept moist and irrigation must be more frequent than for many plants whose roots penetrate the soil deeply. The number of irrigations, however, will depend largely on the character and frequency of the tillage used in conserving moisture and on the type and condition of the soil. If the furrows are thoroughly cultivated as soon as the moisture conditions permit after each irrigation, the number of applications of water can be materially reduced, as compared with the number required when cultivation is neglected. In the lighter soils, during the bearing season, the fields may be irrigated as often as every four to six days, and in heavy soils every week or two. During the months when the plants are not fruiting only enough water to keep them in a thrifty growing condition is necessary.

During the picking period, the usual practice is to irrigate immediately after each picking. When there is danger that the water in the furrows may not be absorbed before the following picking, the field may be covered by two applications, alternate furrows being irrigated in turn.

Beware of Alkali

In many parts of the Western States the soils contain alkali, and alkaline salts are brought to the surface in such quantities as a result of irrigation that the strawberry plants are injured and even killed. Usually the first indication of alkali injury is yellowing of the leaves in the lower spots in the field. In selecting a site for a strawberry field, places where the soils are known to contain alkali should be avoided.

Other limiting factors in growing strawberries in some localities in the West are nematodes, parasites also known as eelworms and gallworms. Their effect, which is usually manifest first on the roots, is commonly called root knot, because of the knotlike enlargements they produce. Nematodes occur widely in soils where the winter climate is so mild that the ground rarely freezes more than a few inches deep, or does not freeze at all. Strawberries should not be planted in soil known to be infested with nematodes, and plants should not be used which have been grown in infested areas.

Time of Planting

In most western localities the season of planting depends upon the period of greatest rainfall, although it is not necessary to rely so largely on rainfall where irrigation is used. In most parts of California late fall and early winter are preferred, for if the plants are set in November or December and make a good growth during the winter considerable fruit may be harvested the following summer. In western Oregon and Washington and in other northern parts of the irrigated regions early spring planting is preferred by most growers, for the cold is likely to injure autumn-set plants which are not fully established. In western Texas the plants are often set in early autumn and a crop harvested the following spring.

Must Prepare Soil Well

Preparation of land for planting strawberries should be complete and thorough. Failure in this respect before setting the plants is likely to prove costly. If the soil does not have abundant humus, it should be supplied before planting, either by making heavy applications of manure or by growing and turning under one or more green-manure crops, preferably a legume. If nematodes are present in the soil, they may be starved out by growing some of the crops which are immune to them, such as corn, sorghum, winter oats, rye, millet, velvet beans, peanuts, and certain varieties of cowpeas, of which the Iron and Brabham are perhaps the best known.

Both the hill and the spaced matted-row systems are used extensively in irrigated regions. Where the soil is heavy and rather impervious to water, narrow beds must be made and the hill system should be adopted. In cases where the soil is penetrated readily to some distance by irrigated water, the beds may be wider and the matted-row system may be used.

Directions for planting, care after planting, harvesting, and shipping, varieties and uses of strawberries are contained in the bulletin, copies of which may be secured free, so long as the supply lasts, on application to the United States Department of Agriculture, Washington, D. C., as may also Farmers' Bulletins 1026, Strawberry Culture, South Atlantic and Gulf Regions; 1028, Strawberry Culture, Eastern United States; and 1043, Strawberry Varieties in the United States.

HIDE AND SKIN STOCKS DECREASE

A slight decrease in the stocks of hides and skins on hand March 31, 1919, as compared with the stocks reported on February 28, 1919, was shown by the monthly report on hides and skins issued by the Bureau of Markets, United States Department of Agriculture. This reduction in stocks is accounted for by decreased slaughter, which is a seasonal condition, and by the active demand for hides and skins. The decreases are general for all classes of hides and skins, except goat skins, which increased more than a million pieces.

Stocks in the United States on March 31 were: Cattle hides, domestic and foreign, 4,949,791; sheep and lamb skins, 7,863,313; pig skins, 169,150 pieces and 1,437,384 pounds of strips; horse hides—whole 68,019, fronts 44,152, butts 118,192 pairs, and shanks 81,796; calf and kip skins, 1,363,299; kangaroo and wallaby skins, 185,816; deer and elk skins, 189,768; goat skins, 7,831,595; kid skins, 181,951; cabretta, 559,576; and buffalo hides, 36,737.

Keep dirt out of milk. Strain through cotton or filter cloth. Use only clean, sterile strainer cloths.

Commerce has served to distribute the tobacco beetle widely, and it probably now occurs in all countries having a temperate, subtropical, or tropical climate.

Cucumber Beetle Does Widespread Harm to Many Vegetables; How to Combat It

"Garden gumption" will do more to reduce the ravages of the striped cucumber beetle than open warfare methods. In other words, prevention is again more effective than cure, declare the entomologists of the United States Department of Agriculture in Farmers' Bulletin 1038, "The Striped Cucumber Beetle and Its Control."

Cucumber, watermelon, squash, cantaloupe, beans, peas, and other crops are attacked by the cucumber beetle. It damages crops in all parts of the United States east of the Rocky Mountains, and is nearly always present in the gardens and on the farms of this area. It is by far the most common and most destructive cucurbit pest the farmer and gardener have to fight.

The Insect and Its Work

This insect is destructive in two stages of its life—the larva or "worm" stage and the beetle stage. The larva is a small threadlike white worm with dark-brown head and tail, which works underground and tunnels the roots and stems of the plants. It is by no means as destructive as the beetle.

The beetle has a black and yellow striped back when its wings are folded, a black abdomen, and yellow neck and legs. It eats the leaves and stems of plants and later gnaws the rinds of the fruits and renders them unmarketable.

The principal injury is done by last year's beetles that have wintered in the trash left in gardens and fields and in dense weeds along ditch banks and river bottoms. These beetles devour the tender stems and leaflets of plants not yet fairly started. The beetles are also carriers of some plant diseases.

After feeding, these last year's beetles lay their eggs in the soil about the roots of the plants the new generation will later attack. The eggs hatch in one or two weeks. When hatched the "worm" bores into the stem of the plant, or may be found on the fruit where this comes in contact with the earth.

In 2 to 5½ weeks the larva is full grown. It then pupates, which takes from 5 to 10 days, and emerges as an adult beetle about the first week in July in the Central West. Adults continue to appear for several weeks thereafter.

Methods of Control

There is no specific remedy for the striped cucumber beetle. Spraying will destroy the beetles when they occur in moderate numbers, but is not effective against large numbers. Since the larvæ live in the roots and stems, principally underground, spraying will not get them. Hence preventive measures must be practiced.

Covering young plants is very effective. A cheap frame may be made by cutting barrel hoops in two semicircles. Place the two half hoops at right angles and insert the ends into the ground over the young plant. Wire croquet arches will serve the same purpose. Cover the frame with gauze. Pack the earth about the edges to prevent the beetles from getting under it. Dish covers of wire gauze, such as are used for the protection of food from flies, are good. It is necessary to keep the plants covered only while they are young. It is an absolute necessity that the covers used be made to fit tightly to the ground at every point to prevent the beetles from burrowing underneath. These covers can be used only when the plants are sown in hills. Where cucumbers are sown in drills, other preventive methods must be used.

HOW TO FIGHT CUCUMBER BEETLE

Protect young plants in small gardens with cloth coverings. Make them tight enough to keep out the beetles.

Plant an excess of seed to scatter the attack.

Plant beans, gourds, early or late varieties of squash and pumpkin with the cucumbers for trap plants.

Practice clean cultivation.

Spray with an arsenical, alone or in combination with Bordeaux mixture. Cover every part of the plant with the spray.

Keep the plants free from other insects and from disease.

Stimulate the growth of plants by manures or other fertilizers.

Water the plants in drought and in hot weather.

Cooperate with neighboring growers of cucurbits.

Clean Cultivation and Trap Plants

Injury from the striped cucumber beetle, as well as other insects, will be prevented largely by clean cultivation methods. As soon as the crop is harvested, burn the vines. It is advisable, however, to leave standing here and there throughout the garden or field a few plants upon which the insects that have not been destroyed by fire may gather. Here the beetles can easily be destroyed with a spray of strong kerosene emulsion or an arsenical. As traps for the later or hibernating generation, plant later in the season or use later varieties. If the beetles are destroyed at this time, their numbers next year will be greatly diminished. Planting alternate rows with other cucurbits will lessen the damage to the main crop.

Use of Insecticides

Lead arsenate is the most effective spray for the striped cucumber beetle. Arsenate of lime and zinc arsenite are also used. Every part of the plant must be covered with the poison. Arsenicals are also effectively used dry by dusting them on the plants.

This garden and field pest works rapidly, and an entire crop may be destroyed in a few days.

The active cooperation of all cucumber and melon growers in the destruction of the fall brood of beetles will accomplish much in a few years.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 3, 1919:

A National Lumber and Forest Policy. Office of the Secretary. Circular 134.

Production of Goats on Far Western Ranges. Department Bulletin 749.

Oak-Leaf Poisoning of Domestic Animals. (Professional Paper.) Department Bulletin 767.

Life History and Habits of the Mealy Plum Aphis. (Professional Paper.) Department Bulletin 774.

The European Corn Borer: A Menace to the Country's Corn Crop. Farmers' Bulletin 1046.

Farm Woodlands and the War. Yearbook Separate 779.

Federal Protection of Migratory Birds. Yearbook Separate 785.

How Weevils Get Into Beans. Yearbook Separate 786.

Sisal and Henequen as Binder-Twine Fibers. Yearbook Separate 790.

Statistics of Grain Crops, 1918. Yearbook Separate 791.

Home Gardening. Library Leaflet No. 8.

Is Thrift Worth While, Mr. American? Thrift Leaflet No. 1.

Seven Steps Toward Saving. Thrift Leaflet No. 2.

Wise Spending Saves Clothing for the Family. Thrift Leaflet No. 3.

Saving Time and Money by Simple Housecleaning. Thrift Leaflet No. 4.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Aiding Trans-Atlantic Flight.

In the proposed trans-Atlantic flight of American naval airplanes the effect of the weather over the Atlantic Ocean will be highly important, and to give the most complete information as to atmospheric conditions in the region to be traversed the United States Weather Bureau is giving full cooperation to the Navy Department. This is in accordance with a request to the Secretary of Agriculture from the Secretary of the Navy. Weather reports covering the western coast of Europe, from Spitzbergen south to the Azores, and from naval vessels scattered over the Atlantic, are to add to the weather information available from stations on this continent. Through this organization the Weather Bureau is working to furnish to the naval authorities information of just when weather conditions will be most favorable for the long air journey.

Farm Labor Situation Less Severe.

Improvement in the farm labor situation this year over 1918 is reported by the Bureau of Crop Estimates, United States Department of Agriculture, after investigation in all agricultural counties of the United States. By improvement is meant net increase of supply and consequently more labor for planting, cultivating, and harvesting in relation to the work to be done. Wage rates were not included in the investigation.

Stated in percentage of a normal labor supply as related to a normal demand for labor, the actual supply of 1918 was 72 per cent and of 1919 it is 83 per cent—still inadequate without greater than normal dependence on machinery and animal, tractor, and motor power, and without more than usual labor by farmers and their families. However, the improvement over 1918 is considerable.

In both years the groups of States that were and are provided with labor in relation of supply to demand, less than, or at the most equal to, the average for the United States, are the North Atlantic, the South Atlantic, and the South Central.

Among these three groups of States, the greatest improvement is in the North Atlantic and the least is in the South Atlantic, and these extremes of high and low improvement are not equaled by the North Central and Western States, in each of which the average improvement is almost the same as that of the entire country. The improvement is evenly distributed throughout all State groups, except the North Atlantic States, where the gain is twice as great as in each of the other groups of States.

Apart from tendency toward relief from labor scarcity from 1918 to 1919, the situation this year is less favorable on the Atlantic coast, from New England to the South Atlantic States as a group, than in the States west of the Appalachian Mountains as groups, and in this long strip of coast the situation is worse in the South Atlantic group of States.

Record Number of Breeding Sows.

Even greater than the record number of breeding sows on farms in the United States a year ago, the number on April 1 this year reached the unprecedented total of 9,970,000, according to the Bureau of Crop Estimates, United States Department of Agriculture. While the average gain for the whole country over last year is only 0.3 per cent, there were gains greater than this in most of the States and as high as 8 per cent in California. Diminished numbers in the great swine States of Iowa, Missouri, Nebraska, Louisiana, and Oklahoma are sufficient to leave barely a gain to the United States as a whole.

Under the pressure of the necessities of the war the breeding sows on farms April 1, 1918, had been raised 9.5 per cent over 1917, a remarkable evidence of the expansive power of swine numbers in practical farming operations; and that this extraordinary increase in one year should have been held the next year, and even a little exceeded, is a notable fact in swine history.

More Poultry Produced.

Poultry production increased 5 to 20 per cent during 1917 and 1918 in Missouri, Kansas, Nebraska, Iowa, Minnesota, North Dakota, and South Dakota, which comprise district No. 3 of the emergency extension poultry work being conducted by the United States Department of Agriculture. Efficiency in poultry management through the application of better methods, advocated by poultry specialists of the department and State colleges, has done more to increase production than the keeping of a greater number of fowls, says the department's representative in this district. In the culling campaign in one State enough money was saved to farmers by disposing of 200,000 slacker hens to more than pay the expenses incurred for all of the extension work carried on in that State, and this culling work was only a part of the extension enterprise.

It was the one campaign wherein results were immediate, however, and it also afforded a definte basis upon which to estimate and tabulate the financial saving. The "better poultry" and "early hatch" campaigns were of even greater importance, and the saving and conservation of food through the "preserve eggs" and the "infertile egg" campaigns runs well up into the hundreds of thousands of dollars the representatives report. More stress is now being placed upon the educational features of poultry work to insure greater efficiency in management. The farmer or poultry raiser will not be content in the future with an average egg yield of 6 or 7 dozen for each hen when it is known that the average yield should be from 9 to 12 dozen.

Plans Five Exhibit Circuits.

Combined Government exhibits from several departments will be sent out this year in five circuits, according to a decision of the joint committee on Government exhibits. The material in each circuit will fill two freight cars and require about 8,000 square feet of floor space for its proper installation. Each circuit probably will consist of about eight State fairs or larger expositions. Itineraries are now being made up by the joint committee, which has headquarters in the Office of Exhibits of the United States Department of Agriculture. The Department of Agriculture, the War Department, the Navy Department, and other departments are cooperating in the exhibit plan.

Hurricane Service Extended.

The Weather Bureau of the United States Department of Agriculture is arranging to install at Fort Myers, on the southwest coast of Florida, about 150 miles south of Tampa, a special meteorological station to aid in the detection of the tropical storms that appear at intervals from June to November. The new station is expected to be in operation about June 1. The Weather Bureau

already has in operation in the Caribbean Sea region about 15 stations, most of them located on islands under the sovereignty of foreign governments. These stations furnish the "hurricane service" which gives warning of dangerous weather disturbances in the Caribbean Sea and the Gulf of Mexico. Through the observations cabled or sent by wireless to the Weather Bureau at Washington "the makings" of great storms often are identified while in the germ stage, sometimes days before these disturbances have developed into the hurricanes that spell danger to shipping and to life on shore. When a storm appears to be brewing in this "breeding place of hurricanes" warnings are sent throughout the endangered region by every possible means, and records show that much life and property have been saved through the service.

Poultry Keeping for the Blind.

Blind Edward Jones, of Jefferson City, Mo., has made a record in keeping poultry which many who have eyes have not equaled. Moving among his birds, which seem to understand how he is handicapped, and guided only by his sense of touch, he performs his daily work. He has built his own poultry house and brood coops, and has hatched and raised all his chicks. Blindness does not prevent him from culling his flock. The birds not intended to be kept are marketed as broilers, and the others are kept for the production of winter eggs.

Mr. Jones attended every poultry meeting held in his section last fall. He is now trying to organize a poultry club for blind people, and the home demonstration agent in the county has volunteered to read to the members the publications on poultry sent from the United States Department of Agriculture.

Kill Prairie Dogs and Save Crops.

New Mexico now has 60,000,000 prairie dogs destroying hay and forage crops on more than 12,000,000 acres, according to estimates by specialists of the Biological Survey, United States Department of Agriculture. If the forage which they consume could be turned into cow feed it would amount to enough annually to sustain 400,000 head of cattle, the specialists add. It has been found by actual test in inclosed areas of better than average forage conditions in the Southwest that ten prairie dogs to the acre require for their sustenance practically all of the season's growth of grass. The forage on areas they occupy is reduced from 15 to 60 per cent. In a 12-acre field of barley examined in Colfax County, N. Mex., last summer these rodents had taken the crop completely from 6 acres, representing a damage of over $160. These are ample reasons why, when an appeal went out for maximum production of crops and live stock to meet the conditions imposed by the war, the New Mexico Council of Defense appropriated $15,000, in conjunction with an equal amount from the Federal war emergency fund, to be used against prairie dogs; why the extension forces of the Federal department, together with the county agents, gave their best efforts to the work; and why farmers and stockmen responded readily. Nearly 5,000 landowners joined in the work of destroying prairie dogs, and 1,230,078 acres of dog-infested land in the State were covered in systematic poisoning operations, resulting in the destruction of 90 per cent of the rodents. First efforts were directed to the saving of crops, and 212,992 acres of cultivated land in the State were effectively protected. The year's work resulted in an estimated saving of not less than $750,000, while the total cost was less than $60,000. A force of 22 experienced field men, working in conjunction with county agents, is ready for this season's campaign. Under cooperative arrangement between the Biological Survey and the Forest Service attention to completing eradication of prairie dogs on areas already treated by the Biological Survey becomes a regular duty of forest officers during a definite period each year, and similar arrangements are in force on Indian reservations.

Reorganizing Weather Work in Tropics.

Work of rehabilitating the West Indian service of the Weather Bureau, United States Department of Agriculture, is being resumed after the interruption caused by the war which called men in charge of the work into the Army's meteorological work in France. Stations are being inspected and placed in condition to give the best information of weather conditions in the Caribbean and West Indian waters. The work is regarded as of special importance because of the acquisition of the Virgin Islands by the United States, the development of the American merchant marine and the probable development of American commerce in the West Indies and with South American countries.

Bull Associations Prosper.

"A bull association would be a paying enterprise for our county, but the farmers here simply won't pull together on any proposition."

This is the usual answer a representative from the United States Department of Agriculture gets when he goes into a new community and asks the individual farmers about the feasibility of organizing a bull association. But 55 bull associations have been organized in 21 States and are successfully operating. A specialist from the Dairy Division of the United States Department of Agriculture recently returned from a two months' trip in Kansas, Oklahoma, Georgia, Louisiana, Tennessee, and Mississippi. In those States he assisted in the initial steps for the organization of 14 more bull associations.

The first bull association was organized in Michigan in 1908. Since then 20 other States have taken up this work. Not a single farmer has ever lost a dollar by belonging. Better bulls are obtained for less money. Better dairy offspring results. More milk is produced for the same money. The investment for the individual farmer is small and the returns are sure.

Successful Booth in Market House.

The canning club girls of Hamilton County, Tenn., have conducted in the city market house a booth which has been a decided success. The city commissioners donated the stall, and the club women, the other stall keepers and the market master have given the girls fine cooperation.

The girl in charge—a member of one of the clubs organized by the United States Department of Agriculture and the State agriculture college—is paid by collecting a percentage on sales. Some weeks the percentage amounts to $18 to $20. Home-made articles of cooking are sold exclusively. These include breads, beaten biscuit, candy, cakes, and 4-H brand canned products. A stove was placed in the stall and on it orders for specials not on hand can be made by the girl in charge. Two girls have been needed Saturdays for the work. The workers wear white waists and the official uniform cap and apron.

This market stall provides a place where all goods put up by women and girls under the instruction of the county agent can be disposed of at a profit. The charge made for handling the products has been 15 per cent for the women and 10 per cent for the girls. Many of the girls have regular customers who will purchase only their particular beaten biscuits, cakes, or cookies. During the holiday season holly wreaths and crocheted articles were sold. Orders are also taken for hand-made rugs, woven, braided, or crocheted. The county agent makes regular visits.

Early fall is the best time to start a flock of sheep. Good-grade ewes and a pure-bred ram are the best for beginners.

Good Soft Drinks Have Real Food Value But Manufacture is Not Always Clean

Have you any idea what things are in the bottled soft drinks you consume—those three billion bottles that, unhampered after July 1 next by strong competition, may grow to more billions?

Well, some contain one thing, some another, but all contain water, flavor, sweetening, and carbon dioxide gas. Those four things are the basic essentials of a bottled soft drink. There is likely to be some coloring matter and there may be an acid—usually either the citric acid found in lemons or tartaric acid found in grapes, though sometimes mineral acids are used. Frequently there is a condiment, such as red pepper, cinnamon, allspice, cloves, or nutmeg. There is almost certainly a trace of alcohol. And that just about covers what is likely to be found in soft drinks, according to specialists in the Bureau of Chemistry, United States Department of Agriculture.

The flavors used for soft drinks include ginger, sarsaparilla, root beer, birch beer, chocolate, cream, colas, cherry, wild cherry, lemon, strawberry, raspberry, loganberry, orange, pineapple, grape, apple, pear, peach, and others, and very frequently two flavors are combined in the same product.

May Continue Sugar Substitutes

Prior to 1914 the sweetening used was almost universally granulated white sugar. When the shortage of sugar began to be felt, however, large use was made of such substitutes as corn sirup or glucose, corn sugar or commercial dextrose, maltose sirup, refiners' sirup, and honey. Such substitutions were encouraged as a war measure by the Department of Agriculture, which now thinks it probable that some of these substitutes will be used regularly. The department is even of the opinion that the use of certain substitutes is frequently desirable. A larger quantity of the substitute is ordinarily required to secure the same measure of sweetness. Thus the drink is given more body and has a higher food value. Sweetening ingredients other than ordinary sugar should be declared on the labels of soft drinks shipped into interstate commerce.

Food value in a soft drink is ordinarily not considered by the person who consumes it, his object being the delectation of the palate or the quenching of thirst, but the fact remains that good soft drinks do contain considerable food. Such products as ginger ale, the phosphate drinks, the grape drinks, and lemon sours contain from $\frac{3}{4}$ to $1\frac{1}{2}$ ounces of sugar to each half-pint bottle, which is equal to or double, approximately, the sugar ration allowed to a meal under war conditions. One hundred thousand tons of sugar are used each year in the soft-drink industry.

Gas, Too, Is Wholesome

The carbon dioxide gas that is present in all bottled soft drinks is a wholesome product, identical with the carbon dioxide which occurs naturally in certain mineral springs in the United States, the waters of which are highly prized for their effervescent properties.

With the exception of vanilla, nearly all bottled soft drinks are artificially colored. Ginger ale, sarsaparilla, root beer, birch beer, chocolate, and the colas are ordinarily colored with caramel, which is another name for burnt sugar. The other drinks are usually colored with one of the permitted dyes—napthol yellow for lemon and orange drinks; amaranth, ponceau, or erythrosine for cherry, strawberry, raspberry, and the like. The use of certain harmless dyes is permitted by the national food and drugs law, provided they do not conceal inferiority and that the presence of the dye is plainly declared on the label. By examining the label on the bottle, one may know whether the soft drink he buys contains an artificial color.

Many drinks contain the pure acids of the fruits they simulate, but others contain mineral acids, phosphoric being frequently used, and sulphuric and hydrochloric less frequently. The United States Department of Agriculture, in a recent publication on the composition and value of bottled soft drinks, says: "Sulphuric and hydrochloric acids do not occur naturally in fruits or fruit juices, and in the opinion of the authors, they should not be used to contribute tartness or sourness to soft drinks."

The quantity of any condiment in a soft drink is likely to be very small. The alcohol contained is used as a solvent for certain extracts and amounts to only a few tenths of 1 per cent by volume.

The Department of Agriculture says that where soft drinks are bottled on a large scale the sanitary precautions are usually excellent, but that where they are manufactured in a small way for immediate consumption conditions are sometimes deplorable. Sirup and extracts are sometimes spilled and allowed to remain, attracting flies and other insects. Proper precautions in washing bottles are not always taken, and the water used for preparing the sirups and for filling the bottles is not always pure. The sanitary quality of bottled soft drinks shipped in interstate commerce is subject to regulation under the Federal food and drugs act, while that of those intended purely for local use is subject to local control by State or city officials. The quality of bottled soft drinks in the long run, the department says, depends largely upon the demand made by the discriminating consumer.

It is estimated that the consumption of bottled soft drinks in the United States prior to war restrictions was about 3,000,000,000 bottles anually, or 30 bottles a year for every man, woman, and child. The consumption is likely to increase, since high-grade bottled soft drinks enable the dweller in rural communities to enjoy a product which a few years ago was obtainable only directly from soda fountains in towns and cities.

URGES A RETURN TO FARMS

In cooperation with the Department of Labor in carrying out the plan for observing May 4 as "Employment Sunday," Secretary of Agriculture David F. Houston issued the following statement:

"The churches of the country having designated Sunday, May 4, as 'Employment Sunday' and as the institution of a great effort to assist the United States Employment Service and its bureaus for returning soldiers and sailors in placing the returning soldiers, sailors, and war workers, may I urge that special appeals be made to induce men of farming experience in the Army to return to the farms? Many of our farm boys have a tendency to stay in industrial centers, where there is little or no opportunity for them to obtain suitable employment. The churches of the country can do much to encourage them to return to their homes and combine self-profit and further service to the country by helping to produce the food that America and the rest of the world requires."

A UNIQUE HORTICULTURAL CLUB

Takoma Park, D. C., has a horticultural club of 140 members, half of whom are specialists and scientists of the United States Department of Agriculture. This club was designed to promote gardening, culture of flowers, and beautifying of home grounds, and to aid in civic improvements, as well as to hold contests and exhibitions of flowers and vegetables. The club purchases seeds, bulbs, plants, fertilizer, and gardening implements cooperatively for its members. Educational meetings are held at regular intervals. This year 23 prizes, including 2 loving cups and 11 gold and silver medals, as well as a saving-bank accounts, will be awarded to club members for the best vegetable gardens.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI MAY 21, 1919 No. 42

STRIKING RANGE IS DISCLOSED IN RETAIL FERTILIZER PRICES

Department Finds Variations of More Than 100 Per Cent

Differences Shown Between Regions, States, and Counties; More Data to be Gathered in Continued Federal Inquiry

The striking disclosure is made in figures gathered by the United States Department of Agriculture that retail prices of fertilizer materials paid by farmers at the present time very considerably as between States and regions and widely as between counties in the same States. In some instances the variation is more than 100 per cent. For instance, a farmer in one county in Tennessee is paying $81 a ton and in another county $150 a ton for nitrate of soda, and in Georgia a farmer is paying $17.50 in one county and $49.70 in another for acid phosphate.

The department has made inquiry through the county agricultural agents, who work under the direction of the department and the State agricultural colleges, of the retail price asked by dealers for the principal fertilizer constituents as of May 1, 1919, in the States where fertilizers are used to a considerable extent. The data has not yet all been received and the inquiry is being pushed, but the results so far obtained show such wide discrepancies in the price for fertilizer material within the States, and, in many instances, such an unreasonable spread between the wholesale and retail prices that the department feels justified in making a preliminary report for the information of the farmers.

Wholesale and Retail Nitrate

The wholesale quotation on nitrate of soda in New York City was $88.50 per ton from December 9, 1918, to February 24, 1919. On March 3 it was $84 per ton and on March 10 it was quoted at $81.50 per ton, which price has prevailed up to and including April 28. The average retail price per ton reported from the New England States was $102.66; from Pennsylvania, $101.33; from the East North Central States, $99.46; from the South Atlantic States, $99.85; from the East South Central States, $102.70; and from the West South Central States, $105.14. Differences in freight rates no doubt have some influence in these variations among States and regions, but freight rates alone can not explain the wide variations in prices in different counties in the same States as shown by a further analysis of the figures.

In five counties in Connecticut the average retail price varies from $95 to $141.67 per ton. In the county of Fair-

(*Continued on page 7.*)

20,000 MOTOR TRUCKS FREE TO STATES FOR ROAD WORK

More than $45,000,000 worth of motor trucks are about to be distributed by the Secretary of Agriculture through the Bureau of Public Roads to the State highway departments. These trucks have been declared surplus by the War Department and are being distributed to the States under the provisions of section 7 of the Post Office appropriation bill. They must be used by the States on roads constructed in whole or in part by Federal aid, for which $200,000,000 in addition to the former appropriation was given to the States under the same bill. All that the States must do to acquire the use of these 20,000 trucks, which range in capacity from 2 to 5 tons, is to pay the loading and freight charges.

Of the 20,000 motor vehicles to be acquired practically free by the States, 11,000 are new and 9,000 are used, but all are declared to be in serviceable condition. The motors will be apportioned to States only upon request of the State highway departments on the basis of the requests received from the respective States, and in accordance with the apportionment provided in the Federal aid law approved in 1916. The requirements of the law are such that the Bureau of Public Roads can not distribute any trucks to counties or individuals.

DELEGATES OF ORGANIZATIONS DISCUSS FARM LIFE PROBLEMS

Recommend Study of Rural Home as Most Important Project

Other Work Advocated to Help Toward Better Conditions; Secretary Speaks for More Advantages in Country Communities

Farm-life problems were discussed at a meeting in the Department of Agriculture, Washington, May 1 to 3, at which representatives were present from agricultural colleges and other educational institutions, the Council of Churches, the Y. M. C. A., the Y. W. C. A., the National Grange, the Country Life Association, the National Board of Farm Organizations, the Farmers' National Council, and other National and State agencies.

The conference, on the last day of its meeting, recommended to the Secretary of Agriculture the study of rural home life as the most important matter for the reorganized Bureau of Farm Management and Rural Economy in its work for the improvement of country conditions. The conference includes under rural home-life studies the attitude of the farmer's wife and children toward farm life, their part in the work of the farm, their relation to the farm income; facilities for safeguarding their health and caring for them in sickness, their opportunities for contact with the world outside the home, the structure of the farmhouse, its equipment for the promotion of family comfort and social life, and its surroundings in the way of beautifications.

Other Studies Recommended

Among the other studies recommended by the conference are: Relation of schools, churches, and other religious institutions to farm-life problems; social aspects of the various types of farm labor; social aspects of tenancy and landlordism, including causes of tenancy, shifting of the tenant population, effect upon rural life and institutions, and social responsibilities of landlords and tenants;

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relation of various forms of disability, such as the illiterate and the defective, to farm-life problems; social consequences of thrift and agencies for promoting thrift, such as savings institutions, rural-credit organizations, and information as to safe and sane investment; social consequences of local disasters due to natural causes; and problems relating to geographical population groups.

Must Consider Whole Problem

The conference discussed the whole field of rural life activities with a view to outline plans for further study of this subject. Secretary Houston said to the representatives that rural life can not be discussed satisfactorily in separate compartments but must be considered as a whole. The Office of Farm Management he regarded as perhaps the one office in the Department of Agriculture at present, which, with the assistance of such people as constituted the gathering and the leaders of State institutions and other organizations, can and should take this broader view and deal with country life accordingly.

"One of the difficulties all of us encounter," he said, "when we try to think about these problems is that we have not facts enough available, especially recent facts."

Suggestions of a plan for getting at more frequent intervals the essential facts bearing on rural life and activities was one of the primary purposes of the conference.

New conditions that have developed in the past few years, and others that are certain to develop in the immediate future, were taken into consideration in relation to the part that the Department of Agriculture and other agencies, National, State, and local, can play in bringing about a more satisfying general system of farm life.

Speaks for Better Rural Life

Secretary Houston, in an address on the opening day of the conference, said it is not sufficient merely that farming shall pay. "The benefits of modern science and modern civilization," he said, "seem to accrue too largely solely to those who live in urban communities." He referred to the meager salaries paid rural teachers and to the fact that the country boy frequently does not receive the kind of instruction that will train him for life on the farm. "As rapidly as possible," he said, "increased facilities should be placed within reach of every community in the way of medical and dental service, clinical facilities, hospitals and nurses, and there should be as full protection against preventable diseases as modern cities have learned to provide."

"Those of us who are familiar with conditions know," he concluded, "that the defects exist and that their removal is a prerequisite to the retention in the rural districts of the necessary number of prosperous and contented people."

Persons Who Attended

The following persons attended the conference:

T. C. Atkeson, The National Grange, Washington, D. C.; Prof. E. C. Branson, University of North Carolina; Miss Mable Carney, Teachers' College, Columbia University; Prof. T. N. Carver, Harvard University; Prof. Francis O. Clarke, professor of mountain agriculture and dean of vocational schools, Berea College, Berea, Ky.; J. L. Dumas, Dayton, Wash.; Prof. C. J. Galpin, University of Wisconsin; Prof. O. F. Hall, Purdue University; Miss Elizabeth Herring, War Council of the National Board, Y. W. C. A.; Benjamin C. Marsh, secretary Farmers' National Council, Washington, D. C.; Rev. Herman N. Morse, New York City; Father John O'Grady, National Catholic War Council, Washington, D. C.; President Bruce R. Payne, Peabody College, Nashville, Tenn.; Clarence Poe, editor, Progressive Farmer, Raleigh N. C.; Herbert Quick, Farm Loan Board, Treasury Department; Mrs. Oliver Wilson, Peoria, Ill.; Miss Edna White, University of Ohio; Prof. George H. Von Tungelin, Iowa State College; Dr. Paul L. Vogt, Philadelphia, Pa.; Dean H. E. Van Norman, Davis, Calif.; Prof. Ezra D. Sanderson, College of Agriculture, Ithaca, N. Y.; D. C. Drew, Y. M. C. A. county work, New York City; E. A. Calvin, Washington representative Cotton States Official Advisory Marketing Board; William T. Creasy, National Board of Farm Organizations, Catawissa, Pa.

These persons were invited to the conference, but were unable to attend:

Miss Mable Head, War Council of the National Board, Y. W. C. A., New York City; Mrs. John C. Ketcham, Hastings, Mich.; Dr. L. H. Bailey, Ithaca, N. Y.; Dr. Edmund Des Brunner, New York City; Prof. J. T. Caine, director of extension, Logan, Utah; C. H. Gustafson, president Nebraska Farmers' Union, Omaha, Nebr.; Dean A. R. Mann, College of Agriculture, Ithaca, N. Y.; J. H. Kimble, president Farmers' National Congress, Port Deposit, Md.; Prof. C. R. Raymond, Berea College, Berea, Ky.; Dr. A. E. Roberts, director Y. M. C. A. county work, New York City; A. H. Stone, Dunleith, Miss.; McIver Williamson, Darlington, S. C.

FOOD MISBRANDING REDUCED BY OPERATION OF U. S. LAW

Less Deception Than in Any Other General Class of Merchandise

Violations Reviewed in 6,300 Notices of Judgment Cover Nearly Every Product; New and More Subtle Frauds Appearing

Reports on more than 6,300 food and drug cases, including both criminal prosecutions and seizures terminated in the Federal courts, have been published in the form of Notices of Judgment since the enactment of the Federal food and drugs act, according to a recent statement of the officials of the Bureau of Chemistry, United States Department of Agriculture, in charge of the enforcement of that law. This number represents only instances of flagrant misbranding or adulteration in which, in the opinion of the officials, it was necessary to prosecute the party responsible or seize the goods in order to check the practice. Thousands of other forms of minor misbranding, say the officials, have been corrected by serving notices on the parties responsible without recourse to formal legal action. The food industries in many instances voluntarily have changed trade practices of long standing.

The violations of the act on which the court actions were based cover nearly every food product from alimentary paste to zwieback, including soft sardines from Maine, as well as spoiled salmon from Washington; frozen oranges from California, as well as sweated grapefruit from Porto Rico. Prosecutions on patent medicines range from so-called "sure cures" for tuberculosis and influenza to candy cathartics and castor oil. In the beverage line, cider as well as champagne, grape juice as well as gin, water as well as wine have been called to the bar—of the Federal courts—to show cause why they should not be poured into the sewer and thus diverted from the alimentary canal.

Finding Foods Adulterated

Contamination is one form of adulteration which covers a large number of violations, and is due principally to carelessness or lack of knowledge of proper methods for preparing, handling, shipping, and storing perishable foods, as is the case with milk having a high bacterial count; spoiled fish, rotten eggs,

swelled canned goods, decomposed tomato pulp, and putrid meat.

The food specialists have done extensive experimental work in developing methods for preparing and handling perishable foods and in aiding manufacturers, shippers, and dealers to apply those methods in a practical way. The marked improvement in the methods of handling perishable foods during recent years has been due, in the opinion of food officials, as much to the experimental and educational work as to the regulatory action under the food and drugs act.

Substitution

Substituting a cheaper article of food in whole or in part for a more expensive one is a favorite form of adulteration, which, in some instances, relieves the pocketbook without injury to health and leaves the purchaser none the wiser. In many instances of this form of adulteration, however, the substituted ingredient has less food value or nutritive material than the genuine article. Such forms of substitution include the addition of ground pepper shells to pepper, chicory to coffee, dilute acetic acid to cider vinegar, distilled vinegar to cider or sugar vinegar, glue to gelatine, and artificial extract to vanilla flavor. The milkman is not the only visitor to the pump or hydrant. Added water or excessive moisture has been found in oysters, fruit juices, canned goods, vinegar, and grains, and even in dried apples as well as in other food products.

The cases in which it was charged that ingredients harmful to health had been deliberately added to foods are few in number. The Federal food and drugs act specifically prohibits the addition of such ingredients to food products. The use of harmful preservatives is unnecessary, and few manufacturers care to risk prosecution or injury to the reputation of their product by adding substances held to be harmful to health. Harmful ingredients in food are usually acquired by the development of harmful bacteria from contamination or harful ingredients accidentally acquired during the process of manufacture, as, for instance, zinc, copper, and arsenic from utensils or materials used in the manufacture of gelatine.

Food Falsely Labeled

The forms of misbranding range from a deliberate false statement as to the nature of the product, as, for instance, labeling a low-grade, cheap coffee with the name of a higher and more expensive grade, such as Mocha or Java, to subtle designs and devices, as the placing on a can of cottonseed oil labeled merely "Salad Oil," the picture of an olive tree and a map of Italy in order to convey the impression that the product is olive oil from Italy.

Among other forms of misbranding of foods may be mentioned the labeling of distilled vinegar as apple cider vinegar, the labeling of macaroni as being of foreign manufacture when it was made in the United States, the labeling of apples as New York State apples when they were grown in other States, the labeling of synthetic methyl salicylate as oil of birch, the misbranding of lake herring as white fish, the labeling of preserves as being composed of loganberries and sugar sirup when the product actually contained approximately 25 per cent of glucose, and the labeling of an artificial flavor as pure vanilla extract.

Quantity Misstated

Foods in package form are also misbranded as to the quantity in the packages. Shortage in weight or measure as stated on the labels or the absence of any statement regarding the quantity of the contents was the basis of a charge for misbranding in several of the food cases.

Misbranding in its various forms is aimed usually to convey the impression that the article is of a higher grade or more expensive than it actually is. As a dishonest clothing merchant will sometimes brand as all wool cloth which is a mixture of wool and cotton, so the dishonest food manufacturer or merchant at times tries to pass off his cheaper foods under the name of higher priced ones. Misbranded foods which are not also adulterated may be wholesome and nutritious, but the purchasers are misled as to the quality or quantity and are induced in many instances to pay a higher price than the articles are worth. As a result of the operations of the food and

THIS COUNTRY NO FIELD FOR BOLSHEVISM

Bolshevism is vicious in its theory and criminal in its practices. It has appeared in certain European countries which have suffered from the domination of unintelligent autocrats, where vast numbers of the people are uneducated and have had little or nothing to say about their political and economic fortunes. It is a pity that such peoples, misguided by fanatical or wrong-minded leaders, have not been able to seize the opportunity presented to them to lay the foundations of beneficent institutions and to proceed in orderly fashion. They will be compelled, for their own salvation, to throw off their present leaders, to make an "about face," and to start on new lines. I have no fear of bolshevism in this country. I have no patience with that small minority of men, many of them recently come among us, unacquainted with our institutions and purposes, familiar only with institutions and conditions radically different from ours, who seek to overthrow our Government. I do not believe that those elements are very strong or will get very far. The people of this country are committed to the rule of the majority and to the rule of law. There is no good cause which can not get a hearing from our people. It is up to the man who advocates it to persuade the majority that he is right. If he can, he can secure what he seeks at the polls. If he can not, he must abide by the will of the majority or suffer the penalty. The majority will not tolerate any effort by a misguided minority to impose its will by violence. If aliens among us propose such a course, the quicker they are put out of the country the better. If naturalized citizens who took the oath to support the Government attempt it, the quicker they are denaturalized the better.

I have no patience with those who advocate the rule of any class. Democracy arose on the downfall of a class. Because our forefathers did not want class rule they deposed such rulers as the Stuarts, the Bourbons, and their adherents. Their descendents and those of our people coming from other free nations who have recently aided in deposing the German ruling class will not permit class rule to be set up here. There is no one class in society that has more sense than all the others. Any one class would make a sad failure of governing this Nation or any other. History teaches that lesson very plainly. I am in favor of improving our Government whenever the need for improvement is demonstrated, but not of upsetting it. It is time for us to refresh our own minds as to the real essence and meaning of our institutions and to bring them home to the uninitiated among us so that government of the Nation by all the people may endure. Every legitimate effort should be made to counteract the schemes of the wild agitators who seek to develop bolshevism in this great free country of ours.

D. F. Houston,
Secretary of Agriculture.

drugs act there is to-day much less misbranding in foods than in any other general class of merchandise sold to the public.

Patent and Proprietary Medicines

The charge in the majority of the more than six hundred patent and proprietary medicine cases included in the notices of judgment was based on false and fraudulent statements on the labels as to the therapeutic or curative powers of the preparations. Worthless preparations carried claims on the labels of curative powers for such dangerous diseases as tuberculosis, diphtheria, scarlet fever, typhoid fever, and influenza, as well as for a host of less fatal maladies.

Some Stock Feeds Adulterated

Many cases were based on the adulteration or misbranding of stock feed. The adulteration charge usually consisted in the substitution of a substance with little feeding value for one of higher feeding value, as, for instance, ground cottonseed hulls in place of cottonseed meal; rice hulls in place of rice bran; and mill and elevator screenings in place of mill feeds. The favorite form of misbranding as shown by the Notices of Judgment was to claim on the labels a higher percentage of protein and fat, and a lower percentage of crude fiber than the feeds actually contained. Charges of short weight were also made in a number of stock-feed cases.

Improvement in Trade Practices

Most of the grosser forms of adulteration and misbranding on which the earlier cases were based have been eliminated as general trade practices, say the officials. Occasional sporadic instances on the part of widely scattered dealers to adulterate and misbrand in the old way are still detected, but such practices are no longer general. New and more subtle forms of adulteration, however, are appearing. While the chief part of the great volume of food products that is shipped into interstate commerce is free from adulteration and misbranding, vigilance on the part of inspectors is necessary to checkmate the few who continue to adulterate.

The industries frequently volunteer to eliminate practices which the department holds to be contrary to the requirements of the food and drugs act, and as a result many reforms of far-reaching effect are brought about without recourse to legal action. Among the many trade practices that have been checked or almost entirely eliminated either by legal action, volunteer cooperation on the part of the industries, or by educational campaigns, may be mentioned a few instances, as the coloring of canned peas with copper; the use of dangerous preservatives; the sweating of immature oranges and grapefruit to give them the appearance of ripe fruit; the adulteration of grain with water to give added weight; taking oysters from water polluted with sewage; canning decomposed fish; the manufacture of foods from refuse products, especially tomato products; and making baking powder and gelatin in such a way that the finished product contains lead or arsenic from the utensils or materials used in the manufacture.

SPRING SEED GRAIN LOANS IN NORTHWEST NUMBER 6,678

The final report to the United States Department of Agriculture from the Federal Seed Grain Loan Office at Great Falls, Mont., discloses that $2,344,897 has been lent to farmers in Montana, North Dakota, and Washington State under the regulations announced when the President's $5,000,000 fund was set aside for this purpose. Montana farmers receiving loans numbered 5,284; 1,354 were thus aided in North Dakota; and 38 in Washington. The loans in Montana totaled $1,847,360 on 369,472 acres of land; in North Dakota, $483,567 on 96,714 acres; and in Washington, $13,970 on 2,794 acres.

Applicants for loans were required to use seed and methods approved by the Department of Agriculture. The primary object of the loans was not to stimulate the planting of an increased acreage of grain for the drought areas, or even necessarily to assure the planting of a normal acreage, but rather to assist in tiding farmers over the period of stress caused by previous crop failures.

HAS NO KNOWLEDGE OF "ZYTHON"

In denial of published statements that it has given an "official O. K." to "zython," said to be a new kind of beer, the United States Department of Agriculture states that none of its bureaus or divisions which should properly consider a matter of this kind has any knowledge of "zython." Hence the Department of Agriculture has not given any kind of sanction or approval or "O. K." to this beverage.

All cereals should be kept in dry, well-lighted storerooms. Damp, dark cellars should never be used for storing foods.

HORSES AND IMPLEMENTS CUT SUGAR-BEET PRODUCTION COST

Growers Enabled to Save Labor Expense and Increase Work

Reduction of Man Labor May Be One-Fourth; Cultivation and Harvesting Both Offer Opportunities for Economy

Many farmers are solving the labor problem by using larger implements and more horses. Such practices have enabled sugar-beet growers greatly to reduce their expenses for man labor and increase their operations. The normal man labor required in growing sugar beets will vary from 80 to 135 hours or more an acre, say specialists of the United States Department of Agriculture in Farmers' Bulletin No. 1042. Under average conditions, where more horses and larger implements are used, they add, the man labor on machine operations will be reduced approximately 25 per cent.

A direct comparison of plowing crews in Michigan and Ohio, where conditions under which the work is done are uniform, shows that approximately one hour an acre less of man labor is necessary to operate a plow drawn by three horses than by two. With the larger outfit, as also when a tractor is used, a float or plank can be attached to the plow, and thus the breaking of a cloddy surface can be done with little additional effort or cost. In disking in the Michigan and Ohio districts it was found that a four-horse outfit saves one-quarter of an hour of man labor an hour over the two-horse equipment.

Saving in Sugar Beets

Cultivation of sugar beets furnishes a striking contrast in crew efficiency. In Michigan and Ohio it was found that 1.9 man-hours an acre were required to cultivate once over with a one-row implement, 1.6 man-hours with a two-row cultivator, and only 0.9 of a man-hour for a four-row cultivator—a distinct saving in man labor by using the four-row machine. As many fields require attention before it is possible for the grower to get the work accomplished, any saving of labor and time is an advantage to the growing crop and affords more man labor for crops competing with the sugar beet in the distribution of labor.

Under average conditions a crew of one man and two horses working continuously will lift approximately 1½ acres of beets a day. A crew of one man and four horses will probably increase this area to 2 acres, or possibly 2½ acres a day under

favorable conditions. The performance of the lifting implement can be improved still further with the addition of more horsepower. If, by using an extra horse on the lifter, this work can be performed in a shorter period, more time will be available for hauling the beets to the factory or loading station.

Harvesters Mean Further Economy

An appreciable saving in farm labor will undoubtedly be accomplished through the development of mechanical harvesters. The hand labor on sugar beets, comprising such operations as blocking, thinning, hoeing, pulling, topping, and loading, constitutes from 52 to 75 per cent of the total man labor required in growing the crop. The pulling, topping, and loading, when combined, make up 24 to 42 per cent of the work. Estimates made by several growers show a variation of 24 to 30 hours in the labor requirement for the hand work in harvesting. It is very apparent, says the bulletin, that this amount can be reduced to a few hours an acre with the introduction of the mechanical harvester. This will in turn release man labor for other important work during the fall months.

In hauling sugar beets to the factory, crews usually range from two to eight horses driven by one man. The loads consist of approximately 1 ton for each horse. In California, where the harvesting is done on an extensive basis, a crew of one man and eight horses is sometimes employed. Such a crew frequently handles two loads, each weighing about 4 tons, which in many sugar-beet sections would be divided into four loads, and three additional men would be required to drive the wagons. By using more horses, and hauling more beets to the load, thereby reducing the number of trips to the factory, not only is less labor required but the hauling is finished before unfavorable fall weather.

The simplest way to prevent the accumulation of dirt is to make it easier to be clean than to be dirty.

There are many advantages to a single-pitch roof on the poultry house. This type is most easily built. It gives the highest vertical front exposed to the sun's rays and throws all of the rain water to the rear.

Straw and similar material gathers moisture, and when the litter becomes damp enough to be limp it is practically useless for fowls to scratch in for their grain feed. Scratching litter in the poultry house is essential, but it should be cleaned out and renewed frequently.

New Rules Class Yellow Oats as White; Test Weights Required on Certificates

One of the features of the new Federal oat grades which will become effective on June 16, 1919, is that yellow oats are classed as white oats, and can take any numerical grade, subject only to general appearance or the color requirements for each grade. This will permit yellow oats of good creamy white appearance to grade as high as No. 1, the United States Department of Agriculture states. The old standards in many cases prohibited yellow oats from grading higher than No. 3.

Another feature of the grading rules is that a statement of the test weight per bushel is required on all inspection certificates. Because the minimum weight per bushel for No. 1 oats is 32 pounds for the national standards, which is 6 to 8 pounds lighter than much of the oats crop produced in the Pacific Northwest and in certain other intermountain and central western areas, grain dealers and buyers in those parts of the country will probably place their bids on the basis of higher test weights than are provided in the Federal grades, as, for example, "Bid to-day for No. 1 white oats, 36 pounds or better," or, "No. 1 white, 38 pounds or better," etc.

The Department of Agriculture calls the attention of farmers and grain dealers to this provision in the grades, since the assignment of the numerical grade of No. 1 or No. 2 does not always properly identify the condition of the grain with respect to weight, without a statement of the test weight per bushel.

Condition and Appearance Important

The condition and general appearance is one of the important grading factors in the new standards. Oats to grade No. 1 must be of good color (in the case of No. 1 white oats, they must be good white or creamy white color). No. 2 oats may be slightly stained, while No. 3 may be stained or slightly weathered, and No. 4 may be weathered or badly stained. It has been found impossible to describe more exactly the degree of stain to be allowed in each grade, but to establish uniformity among the grain inspectors, the Board of Review of the Bureau of Markets, located at Chicago, will issue type trays to Federal grain supervisors and inspectors licensed by the Department of Agriculture. These official type trays will show the lowest limits of discoloration allowed in the Nos. 1, 2, and 3 grades.

While the lines of distinction as to discoloration were formerly rather distinctly drawn by each local inspector or market, no type trays were used as a definite interpretation of the local grades and in many cases these local grades were interpreted differently. However, in order that the general scheme for the grading of white oats with respect to general appearance may be more easily understood by persons not having access to the official type trays the following is suggested:

Oats which were good enough for No. 1 white and the better quality of No. 2 under old grades, with respect to general appearance (discoloration), will grade No. 1 white oats under Federal standards. The lower quality No. 2 white oats and practicaly all standard white under old grades will, in so far as general appearance (discoloration) is concerned, grade No. 2 white oats under Federal standards. Poor quality standard whites and No. 3 under former grading rules will grade No. 3 white oats under Federal standards where general appearance (discoloration) is the grading factor. The No. 4 grade remains practically the same with respect to the factor general appearance.

Any interested person who desires information relating to the requirements for general appearance of the new oats grades may see the official type trays by visiting an office of Federal grain supervision or any inspector licensed by the Department of Agriculture to grade oats. These offices are located in all large markets. A person mailing a sample of oats approximately 2 quarts in size in a clean cloth sack to any grain inspector in the United States licensed to inspect oats will receive an inspection certificate showing the grade of the sample according to the Federal grades. A small fee is charged by the inspector for this service.

The poultry building should not be so wide that the rays of the sun can not reach the back of the interior of the house. Otherwise it will be damp. Fourteen feet is a convenient width.

Plumbing is becoming a necessity in both city and country homes, not only for comfort and convenience but even more for health and cleanliness. It also provides for the proper disposal of the wastes of the household, which should by no means be neglected.

EUROPEAN BORER THREATENS AMERICA'S GREAT CORN CROP

Danger of Pest Spreading from Massachusetts and New York

Insects Tunnel Through All Parts of Plant Except Roots; Complete Burning Most Effective Method of Protection

The European corn borer threatens the future of America's greatest crop. This pest plies his trade with the industry of a beaver to the extent that he is the most dangerous plant pest that has yet immigrated from foreign lands to the corn lands of Uncle Sam. The larvæ, or borers, hungry as half-starved rats, tunnel through all parts of the corn plant excepting the roots, and destroy or severely injure the ears and stalks. That their diet may have variety they also attack celery, Swiss chard, beans, beets, spinach, oats, potatoes, tomatoes, turnips, as well as dahlias, chrysanthemums, gladiolas, geraniums, timothy, other grasses, and weeds. Two generations occur each year, so that multiplication and spread are rapid, especially as few are destroyed by natural enemies.

Specialists of the United States Department of Agriculture, in Farmers' Bulletin 1046, describe the danger to American corn by the presence of the European corn borer in eastern Massachusetts. They surmise that the pest was introduced in raw hemp imported from Europe for use in Massachusetts cordage factories, or possibly in bales of broom corn imported by factories in central New York. There are 35 towns in Massachusetts, including an area of about 320 square miles, infested with the insect, which has been confined to the limits of its original infection except for an outbreak discovered in January in the vicinity of Schenectady, N. Y., covering an area of approximately 400 square miles.

How the Borer Works

The larvæ, or borers, tunnel through all parts of the corn plant except the fibrous roots. They cause the most serious damage by their work in the stalks and ears, which they partially or totally destroy. Generally they enter the stalk at its upper end and near the base of the tassel and at first tunnel upward. This damage so weakens the tassel stalk that it breaks over before the tassel matures, resulting in loss of pollen and the lack of normal grain formation on the ears. These broken tassels, with extrusions of sawdustlike material at the breaks, are the most conspicuous signs of infestation in the field. Field counts in badly infested areas have shown as many as 60 per cent of the tassels broken over in this manner. After destroying the tassel, the borers tunnel downward through the stalk, gradually increasing the size of their tunnels as they develop. Instead of entering the stalk near the tassel many of the borers enter between the leaf sheath and stalk at a point lower down and tunnel upward or downward according to their individual preferences. When several or many borers are working within the same stalk it soon is reduced to a mere shell. This injury cuts off the supply of nutriment from the developing ear and greatly weakens the stalk, which eventually breaks over. Some of the partly grown borers leave the stalk and enter the ears through the husks and also through the stem and cob. Here they feed upon the immature grain and tunnel through all parts of the cob.

Eggs Laid in Summer

In July and August many of the moths deposit their eggs directly upon the newly developed ears of late corn. The resulting crop of borers feed at first upon the silk and then enter the ears directly, where they feed voraciously upon the grain and cob. As many as 15 full-grown borers, each about an inch long, have been found feeding upon and within a single ear of corn. This extensive injury to the ear results in its complete destruction. Some idea of this damage may be gained from the fact that 75 plants, comprising 17 hills, were selected at random from a badly infested Massachusetts cornfield, and all the borers found therein were carefully removed and counted. Forty-six borers, on an average, were found in each plant, while one of the plants contained 117 borers. One hill consisting of four plants contained 311 borers. At the average rate of 46 borers a plant, an acre of corn would contain over a million of these pests. The borers enter and damage other crops mentioned previously in the same way as described for corn, but usually to a less serious degree. In addition to the actual loss caused by the work of the borers, there is also the possibility that some of these products, when shipped to market, may contain the insect and thus serve as carriers of the pest to new localities.

Danger in Spreading Insect

Although the female moths of the European corn borer are capable of flight, and may extend gradually the present limit of the pest by natural spread, the chief danger of the country's corn crop lies in the possibility that plant material infested by the insects may be transported throughout the country and start other sources of infestation. In order to combat this danger it will be necessary strictly to enforce all Federal and State quarantines, prohibiting the transportation out of the infested area of all plants or plant products likely to be infested by the borers.

A most effective method of destroying the European corn borer is to burn all of the previous year's corn stalks, corn stubble, crop remnants, and stalks of garden plants, weeds, and larger grasses that may contain the overwintering borers. This must be done during the late fall, winter, and early spring, while the borers are hiding in such material. Infested plants may also be disposed of when practicable by feeding them to live stock or by burying them in a manure or compost heap. It should be clearly understood that each and every plant likely to be infested must be destroyed. This includes the stubble and upper part of the roots. Occasionally plants or parts of plants which may seem hardly worth the trouble to clean up are likely to harbor enough borers to give rise by the end of the season to as many insects as were present before the clean-up operations began.

Burning Most Effective

Complete burning is undoubtedly the most effective and cheapest method known for the destruction of infested material, especially during the late fall, winter, and spring, when the vegetation is dead and dry. It may be necessary to sprinkle the plants with oil or to use other fuel to secure complete combustion. Where it is possible and safe to use a running fire in destroying infested plants this is the quickest means.

In some cases, particularly in that of corn, the infestation may be controlled by feeding the grain to live stock either directly from the field or as ensilage. From the economic standpoint this is the best possible means of destruction. In some infested districts it is common for the owners of dairy cows to collect fodder from the sweet-corn plantings of the market gardens as well as from home gardens after the crop has been harvested. Where fodder is fed green it should be run through a shredder or cutting machine before it is given to the live stock, as this process greatly reduces the chances that any of the borers contained therein will survive.

The practice of plowing under infested material is not recommended, because plowing, even when carefully done, will

not cover the material deeply enough to prevent the borers from making their way to the surface, and a few stalks may remain exposed.

In Massachusetts it was ascertained last year that corn planted early in May was relatively free of infestation as compared with the earlier plantings, which on the average were heavily damaged by borers. This is explained by the fact that the early planted corn reached the tassel stage about the middle of June, when the first brood moths of the borer are depositing their eggs. The moths prefer to deposit eggs on corn bearing a tassel or just coming into the tassel stage, therefore this early corn is ordinarily infested severely. As a result, when the later-planted corn arrives at the tassel stage, about July 1, most of the moths have deposited their eggs to the extent that these later plantings escape serious injury.

Experiments in applying arsenical poisons to the surface of corn plants have shown that large numbers of the borers may be poisoned in this manner during the early stages. At this period they feed to a slight extent on the surface of the plants, especially on the leaf plants. It was found impossible, however, to protect the plants entirely in this manner, as the number of borers not killed by the poison were sufficient to damage the stalks and ears severely. The cost of applying these poisons is prohibitive, because several applications are necessary, and the method is not recommended.

DISCLOSES WIDE RANGE IN RETAIL FERTILIZER PRICES

(*Continued from page 1.*)

field the range is from $120 to $160 per ton. In three counties in Pennsylvania the range is from $79 to $120 per ton; in 11 counties in Indiana the range is from $81 to $102.50 per ton; in 13 counties in Maryland from $88 to $110; in 32 counties in Virginia from $81 to $140; in 43 counties in South Carolina from $84 to $150; in 20 counties in North Carolina from $86 to $110; in 65 counties in Georgia from $83 to $125; in 20 counties in Florida from $90 to $120; in nine counties in Kentucky from $81 to $200; in 30 counties in Alabama from $80 to $125; in 17 counties in Mississippi from $82.50 to $120; in five counties in Arkansas from $85 to $105; in 14 counties in Louisiana from $81 to $140; in 14 counties in Texas from $81 to $150; and in 11 counties in Tennessee from $81 to $150.

Wide Spread in Acid Phosphate

In the case of acid phosphate, the wholesale price in New York remained at $18 per ton from February, 1918, to October of the same year. In November the average quotation was $17.67, from December to February it was $17, in March $16.87, and in April $16.22. The average retail price per ton as reported by the county agents in the New England States was $29.50; in Pennsylvania, $29.32; in the East North Central States, $30.07; in the South Atlantic States, $26.25; in the East South Central States, $28.87; and in the West South Central States, $30.60.

In three counties in Massachusetts the average retail price per ton ranges from $27 to $31.50; in five counties in Connecticut from $25 to $37; in eight counties in Pennsylvania from $27.65 to $31.25; in 38 counties in Indiana from $27.50 to $35; in 51 counties in Tennessee from $25 to $37.50; in 47 counties in Alabama from $22 to $30; in 27 counties in Arkansas from $25.15 to $40; in 81 counties in Georgia from $17.50 to $49.70; in 38 counties in Kentucky from $25 to $43; in 39 counties in Texas from $24.25 to $70; in 42 counties in Louisiana from $22 to $34.50; in 41 counties in Mississippi from $24 to $35; in 20 counties in West Virginia from $28.75 to $32; in 53 counties in Virginia from $21.25 to $42.80; in 61 counties in North Carolina from $23 to $29.99; in 37 counties in Florida from $21 to $43; in 23 counties in South Carolina from $21 to $28; and in 15 counties in Maryland from $24 to $29.50. These prices are all based upon 16 per cent acid phosphate.

Seven county agents in Georgia report an average price of $18.79 per ton in bulk and $26.36 in sacks, making a difference of $7.57 for sacks which during war conditions did not exceed $3.50 for sufficient sacks and labor to carry a ton.

Further details are being assembled by the department and will be published for distribution among the farmers of the United States for their information.

AIRPLANE PATROL TO START SOON IN NATIONAL FORESTS

Patrol of national forests by Army airplanes to give early warning of fires developing in the forests will begin June 1, according to arrangements completed with the War Department by the Forest Service, United States Department of Agriculture. On the same day observations covering a large part of the Angeles National Forest will be begun from a captive balloon stationed over the Army Balloon School near Arcadia, Calif.

Two routes of airplane patrol work will be operated from March Field, 12 miles southeast of Riverside, Calif. Two planes will be used on each route, the routes will each be approximately 100 miles long, and each route will be covered twice a day.

Begins Try-Out Work

This will be the beginning of experimental work in which the adaptability of aircraft to forest patrol work is to be thoroughly tried out. If the tests should prove successful it is expected that the airplane patrols will be extended before the end of the 1919 season, and that airplanes will become a permanent feature of the ceaseless battle against fires in the national forests.

The airplane routes from March Field will afford an opportunity to survey about 2,000 square miles in the Angeles and Cleveland National Forests. The airplanes are not equipped with wireless telephone apparatus of such a nature that they can communicate with the ground without the installation of expensive ground instruments. Warnings of fires will be transmitted by means of parachute messages dropped over a town, the finder to telephone them to the Forest Service; by special landings made to report by telephone; and by returning to the base and reporting from March Field direct to the forest supervisor.

Locate By Squares on Maps

Fires will be located and reported by squares drawn on duplicate maps, one to be in the possession of each airplane observer and another to be in the office of the forest supervisor.

The observation balloon over the Arcadia Field is to be maintained at an elevation of about 3,000 feet from 7 a. m. until 2.30 p. m. each day. The student detachment-learning observation, now stationed at Mount Wilson, also will render fire lookout service. Reports of fires from both the balloon observer and the Mount Wilson detachment will be telephoned to the Army Balloon School and transmitted to the Forest Service office at Los Angeles.

A fire-fighting truck, with 10 enlisted men, will be stationed at Arcadia as part of the fire-suppression forces and will be subject to the call of the Forest Service.

One of the best things about the garden is that it offers work suited to each member of the family.

What is a back yard good for? It may be made to supply the average family with fresh vegetables through the growing season.

A weed is any plant in the wrong place. Vegetables too close together are as injurious to each other as weeds. Thin them out before they are large enough to crowd.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

WILL STUDY FARM LIFE FOR REORGANIZED BUREAU

Appointment of Charles J. Galpin, professor of agricultural economy in the College of Agriculture of the University of Wisconsin, as economist in charge of farm-life studies of the United States Department of Agriculture, is announced by the Secretary of Agriculture.

Mr. Galpin is to conduct farm-life studies for the reorganized Bureau of Farm Management and Farm Economics. This work was recently outlined by a conference of agricultural representatives and includes studies of rural home life, opportunities for social contacts in typical rural communities, the relation of educational and religious institutions of farm-life problems, problems relating to geographical population groups, rural organizations (without definite geographical boundaries), social aspects of tenancy and landlordism, social aspects of various types of farm labor, the relation of various forms of disability to farm-life problems, the social consequences of local disasters due to natural causes, and the social consequences of thrift and agencies for promoting thrift.

Mr. Galpin is a native of New York, is a graduate of Rochester and Harvard universities, and is the author of a number of publications dealing with rural-life problems.

"Mr. Galpin has done more careful inductive research work in the field of farm-life problems than any other man in the United States, and is unquestionably the leader in this field of research at the present time," said Dr. H. C. Taylor, chief of the farm management work of the Department of Agriculture.

The new official attended a conference relative to farm-life studies in St. Louis May 13 and 14.

ROAD WORK RECORDS MADE BY APPROVALS IN APRIL

During April, 1919, the Secretary of Agriculture approved project statements for 120 Federal-aid projects, involving the improvement of 923.53 miles of road at a total estimated cost of $16,261,326.51, and on which Federal aid in the amount of $7,528,550.68 was requested. This represents the largest number of project statements approved, the largest total estimated cost, and the greatest amount of Federal aid requested during any month since the passage of the Federal-aid road act.

March, 1919, had surpassed all records in these items up to that month.

During April there were executed by the Secretary and the several State highway departments 55 project agreements, involving the improvement of 521.51 miles of road at a total estimated cost of $4,626,415.48, and on which $2,039,614.99 Federal aid was requested and set aside in the Treasury. In addition, agreements to cover 72 other projects were placed in process of execution during the month.

Up to and including April 30, 1919, project statements for a total of 1,057 projects had been approved, after deducting all approved projects canceled or withdrawn by State highway departments. The 1,057 projects involved 10,580.17 miles of road, a total estimated cost of $92,933,121.81, and a total of $36,576,857.48 Federal aid. On the same date a total of 535 project agreements had been executed, involving 4,624.83 miles of road, a total estimated cost of $39,059,327.44, and a total of $15,614,929.61 Federal aid.

GROUNDING WIRES A REMEDY FOR MANY COTTON GIN FIRES

The main cause of the frequent and destructive fires in the cotton gins of the South is static or frictional electricity, an element easily controlled by simple methods. That was shown conclusively in recent investigations by the United States Department of Agriculture through its Bureau of Chemistry, which now has issued a circular telling how to prevent blazes from static electricity, and also giving suggestions for the prevention of fires from matches or other foreign material in cotton, from friction, from cotton hanging to ribs in the gin, or from other possible causes of less importance.

So frequent were the mysterious gin fires in 1917—the losses in Texas alone that year being estimated at a million dollars—that rumors of alien enemy activity spread through the country, and Uncle Sam sent several experts to Texas to determine the cause and the preventive. The experts found that most of the fires were caused by sparks of static electricity, but that it was easy enough to prevent the sparks from doing damage by the simple expedient of running wires from the gin machinery to the ground.

How to "ground" gin machinery is the chief thing that the experts have to tell in the new circular "Cotton Gin Fires," numbered 28, which may be obtained free by application to the Bureau of Chemistry of the department. Diagrams show the best ways of wiring.

LIVE STOCK COMMISSIONER TO GO TO SOUTH AMERICA

The Bureau of Markets, United States Department of Agriculture, has perfected plans to investigate in South America the possibilities for pure-bred stock from the United States and to stimulate interest in importations from this country. David Harrell, of Austin, Tex., who until recently was representative of the War Trade Board in Spain, has been appointed as live-stock commissioner to perform this work, and he plans to sail about the middle of June. He will be accompanied by H. P. Morgan, of the Bureau of Markets, as an assistant.

Until five years ago Mr. Harrell had been engaged for many years in the live-stock business in Texas and Mexico. For some time he was an importer and breeder of pure-bred cattle, hogs, and Angora goats, and his stock won many first prizes in live-stock shows of national importance. He was for several years president of the Texas Shorthorn Breeders' Association, and did important trade-promotion work in Mexico for both the Texas and national associations. Until his departure for Spain in 1917, Mr. Harrell was a governor of the University of Texas.

A few crops well chosen and properly cultivated are preferable to a miscellaneous assortment—no one of which will supply enough vegetables to make a full serving for the entire family.

PRAISE GIVEN NEW ENGLAND FOR WAR FOOD PRODUCTION

"Magnificent" Response "Where Once the Embattled Farmers Stood"

Despite Many Obstacles, Soil of Northeastern States Makes High Acre Record; More Live Stock Now Are Maintained

If any section of the United States found it specially difficult to respond to the need for increased food production in 1918, the general belief in the hard conditions of agriculture in New England would naturally suggest that section as the leading one in this respect. A rough, rocky, stony country of small fields; with a long, severe winter, menaced by late and early killing frosts; with a general aspect denoting the necessity for arduous labor on farms for long hours, often with poor results—that is New England's reputation and the impression made on the traveler. It is a region of deficient agricultural production and does not produce as much food as it consumes in the aggregate.

Yet New England farmers, after long suffering under the competition of the extensive, newer agriculture of the Middle West, have recovered themselves, have adjusted themselves to their environment, and offer comparisons with the rest of the United States that are much to their credit, says the United States Department of Agriculture. It is everywhere a surprise to learn how productive New England farms are per acre. It is the surprise that the impossible has been achieved.

Crop Production High

All along the line of crops New England's production per acre is high for this country. The region would hardly appear to be favored as a corn country, and yet during the 10 years 1909–1918 it produced an average of 45 bushels of corn per acre, or 73 per cent more than the average for the United States. Little wheat is sown, perhaps, on the best land; however this may be, 25 bushels per acre were produced in the 10 years, or 65 per cent above the national average. The production of oats was 38 bushels, or 16 per cent over the national average; barley, 30 bushels, and 18 per cent; rye, 19 bushels, and 19 per cent; buckwheat, 24 bushels and 27 per cent; potatoes, 165 bushels, and 71 per cent. Farmers who have won these results on the "forbidding" soil of New England must know some things, and they must have been industrious.

How did these men respond to the cry for more food when the production propaganda for 1918 was presented to them in 1917? In the aggregate, not enormously, because that was humanly impossible; but, by increased degree of effort, magnificently. Although in close contact with industries that attracted their labor from them, they pushed up their corn acreage by more than 19 per cent above that of 1917. Much of the corn raised in Maine is sweet corn for canning, and in that State the corn acreage increased 42 per cent. The factory product of canned corn in Maine was 1,112,912 cases in 1918, 566,498 cases in 1917, 782,000 cases in 1916, 942,000 cases in 1915, 1,114,000 cases in 1914, and 650,000 cases in 1913.

Wheat ceased to be of any importance to New England agriculture as one of its crops since 30 or 40 years ago, but when the war need for more wheat appeared in 1917 the farmers increased their wheat acreage in that year above the 10-year prewar average by 325 per cent, and in 1918 overtopped the acreage of 1917 by 141 per cent.

Oats do well in New England and are a regular feature of farming, so that any considerable percentage of increase of acreage means a large increase in required labor. In spite of such a situation, the acreage of oats in 1918 gained 36 per cent on that of 1917.

Barley, too, participated in the general advance in acreage and in 1918 gained 45 per cent on the acreage of 1917. Rye, not to be outdone, advanced 46 per cent in acreage, and buckwheat 38 per cent.

The potato situation in 1918 was unfavorable commercially throughout the United States. Production had been so extraordinarily high in 1917 that it was beyond the normal consumption, and the expectation of farmers in 1918 was that another such crop as that of 1917 could not be absorbed by consumption; so the acreage of late potatoes nearly everywhere declined in 1918. Maine, long famous for its great potato crop, had increased its acreage in 1917 by 20 per cent over that of 1916 and let the average of 1918 fall 25 per cent below that of 1917. In all New England the potato acreage declined 17 per cent in 1918. But the farmers of New England, aware of the food situation in 1917, had increased their potato acreage in that year by 26 per cent over that of 1916, and had thus demonstrated how capable of response they were to the needs of the war in extending the area of this crop.

Cattle, Sheep, and Swine Increased

By increasing their food-producing animals, as well as by increasing their crop areas, the stern purpose of the New England farmers was shown. Milch cows only slightly increased in 1918 over the number of 1917 in New England, and such, indeed, was the general fact for the United States; but cattle other than milch cows gained 6.2 per cent in New England, against a gain of 0.7 per cent in the whole country. From 1916 to 1917 the gain in New England was 8.5 per cent, in the United States 5.8 per cent.

The six States that are the subject of this article were once a favorite home of sheep, and sheep fit into the agriculture of that region. After a long period of decline, the number of sheep has at last begun to increase. From 1917 to 1918 the gain in New England was 6.2 per cent and in the United States 2.6 per cent; from 1916 to 1917, 4.7 per cent in New England and 2.1 per cent in the United States.

New England is conspicuous for swine increase from 1917 to 1918, and this is represented by 16.7 per cent, against 6.5 per cent for the whole country. From 1916 to 1917 New England's swine gained 3.8 per cent and that of the United States 5.1 per cent.

Foregoing are some of the evidences of the patriotic spirit of the New England farmers that can be measured. But the surveyor's chain and a count of farm animals can not cover all patriotic activities and can only be indicative. New England farmers were well aware of the historic glory of their region and were thoroughly true to its patriotic traditions.

Decrease in Amount of Wool Held By Dealers Since December 31

Wool in the hands of dealers March 31, 1919, shows quite a decrease since December 31, 1918, according to the quarterly wool stock report issued by the Department of Agriculture through its Bureau of Markets. They held 53,000,000 pounds less grease wool, 5,000,000 pounds less scoured, 1,000,000 pounds less pulled than on December 31, 1918. The holdings, tops, and noils remained about the same.

Manufacturers, however, show an increase in stocks held. This indicates that manufacturers are taking on the larger percentage of the wool offered at the Government auctions and apparently hold an optimistic view toward future conditions.

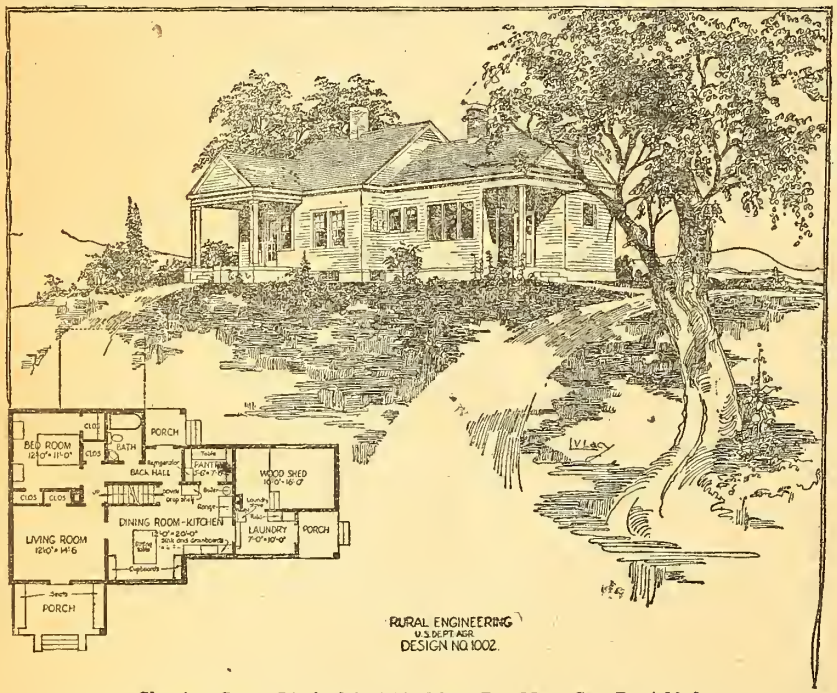
Wool held by the Army and Navy on March 31, 1919, including wool afloat to this country, was as follows: Grease, 238,911,000; scoured, 35,457,000; pulled, 13,104,000; tops, 2,322,000.

Better Homes Identify Prosperous Farms; Department Offers Plans for Dwellings

As the income and standard of living of the average farmer improve, his satisfaction with necessities develops into a desire for conveniences such as the modern farm home provides. That is why the traveler through an agricultural country usually can identify the most successful and progressive localities by the appearance of the farm buildings. When the average farmer is financially able he builds a better farm home and equips it with such conveniences as a water system, lighting plant, heating facilities, and mechanical washing machine, electric flatiron, vacuum cleaner, and other devices which bring joy to the housewife and her family.

The Rural Engineering Division of the United States Department of Agriculture suggests a satisfactory system for the farmer who has a small family and hires two or more single men. It provides a homelike, comfortable bungalow for the family and a cozy bunk house for the men. Such an arrangement provides the desired privacy for the farmer and his folks while it furnishes quarters which satisfy the unmarried men. Farmers interested in such a scheme may obtain bunk-house plans on request free of charge from the Rural Engineering Division.

A practical farmhouse for a small family is presented in the accompanying design, No. 1002, contemplating a living room, a combination dining room and kitchen, wash room and woodshed, and bedroom and bath. This plan provides for comfortable and commodious working and living quarters, but for only limited sleeping space. Should larger sleeping accommodations be desirable an additional bedroom may be provided, as indicated by the dotted lines. Entrance is provided from the back porch into the wash room and thence into the dining-room kitchen. There also is a side entrance, which opens into the back hall, whence admission to the bath, bedroom, living room, or dining room is possible. The laundry and porch adjoining the woodshed are intended solely for household purposes. It is the expectation that laborers and others entering and leaving the house will use the porch adjoining the bathroom. In this case no provision for washing up has been provided for other than that in the bathroom. A pantry adjoins the kitchen-dining room, while commodious closets and cupboards are provided throughout the house.



Sleeping Space Limited in This Plan, But More Can Be Added

Design No. 497 shows another substantial farmhouse suitable for the small farm family or for the use of a farm superintendent or foreman. This house features an interior arrangement with a minimum of waste space. Two bedrooms with a central bath connect with a large, central living and dining room, which, in turn, opens into a kitchen on one side and a living porch on the other, with space for wash room and laundry, pantry, and fuel storage in the rear. Both of these inexpensive and sensible houses are equipped with heating systems.

Designed for Southern Conditions

Design No. 522 depicts a model house designed particularly for construction in the Southern States, where the labor is usually colored and quartered in separate cabins. This farm home provides a cool and convenient kitchen and dining room for the housewife, bedrooms and living room with the best exposure, facilities for outdoor sleeping, and an easily heated house, cool in summer, and yet providing sunny rooms in winter.

The arrangement of the dining room and kitchen constitute the chief feature of this plan. The china closet, which opens into both rooms, saves many steps, as clearing up after meals is facilitated by passing the dishes through on the wide counter shelf, and after washing returning them to the china closet, where they are available from either side. In this house the kitchen should be cool, as it is provided with windows on opposite sides, permitting a cross draft of air, and because the range is in a separate room. This arrangement is not extravagant of steps, as the range is no farther from the other fixtures than in the average farm kitchen.

The cook-room ceiling has a large opening, which permits the heat and cooking odors to escape through a ventilator in the gable. Near the stove, to give light and air, is a double casement window. A grated opening near the floor in the wall between the cook room and the kitchen closet draws air from below the floor and promotes circulation upward, thus keeping the room cool. During the winter, if it is desired to keep the house warm, the door between the cook room and kitchen can be kept open, and the ventilator and grating closed when not needed to carry off odors. The separate and well-ventilated cook room insures a dining room cool and free from objectionable odors.

Heating System Provided

Most southern farm homes are equipped with open fireplaces, which, as a rule, are inadequate for heating purposes. Hence this model house is provided with a warm air furnace installed in a pit beneath the bathroom. The expense of such equipment is comparatively small, while the upkeep is low and more than repaid by the comfort due to a dependable system of heating. In many sections of the South

practically all material necessary for the construction of such a comfortable farm home can be cut and sawed directly on the farm where it is built. In this way the cost of the house can be reduced, particularly where home labor is used in some of the rough construction work.

Design No. 702 shows the southern home described above, remodeled to suit northern conditions, where the farm laborer usually eats in the house with the farmer's family. These drawings show the sleeping porch reduced in size so as to provide space for an additional bedroom, while a laundry and washing facilities for white laborers are installed in a portion of the screened rear porch. The installation of these conveniences necessitates a change in the location of the cellar stairs. This change is readily accomplished as shown on the floor plans. The cellar stairs are put in under the passageway which extends in the southern house from the laundry to the living room. Otherwise, with the exception of some minor alterations, the northern house is a facsimile of the southern dwelling. This house is practical in northern latitudes for the same reasons that it is popular in the South—it is cool in summer and easy to heat in winter, provides plenty of sunlight, and minimizes the work of the housewife.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 10, 1919:

Production of Goats on Far Western Ranges. Department Bulletin 749.

The Rose Midge. (Professional Paper.) Department Bulletin 778.

Gardening Instructions for Club Members. Department Circular 27.

Currants and Gooseberries. Farmers' Bulletin 1024.

Cotton Gin Fires Caused by Static Electricity. Department Circular 28.

Culling the Poultry Flock. Department Circular 31.

The Farmer and Federal Grain Supervision. Yearbook Separate 766.

Housing the Worker on the Farm. Yearbook Separate 789.

Statistics of Crops Other than Grain Crops, 1918. Yearbook Separate 792.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Keeping a machine or vehicle in good repair and well oiled not only increases its efficiency, but lessens the power required in using it.

Small Farms Need All-Purpose Tractors; Development of "Iron Horse" in U. S. Shown

Manufacture of tractors for agricultural use has grown greatly in a comparatively few years, but a big field is still open to manufacturers in the small farmers' business, which can be gained only by the introduction of all-purpose tractors that can be used economically on farms of under 100 tillable acres. This is stated by a farm-management specialist of the United States Department af Agriculture in a review of the development of the tractor in this country.

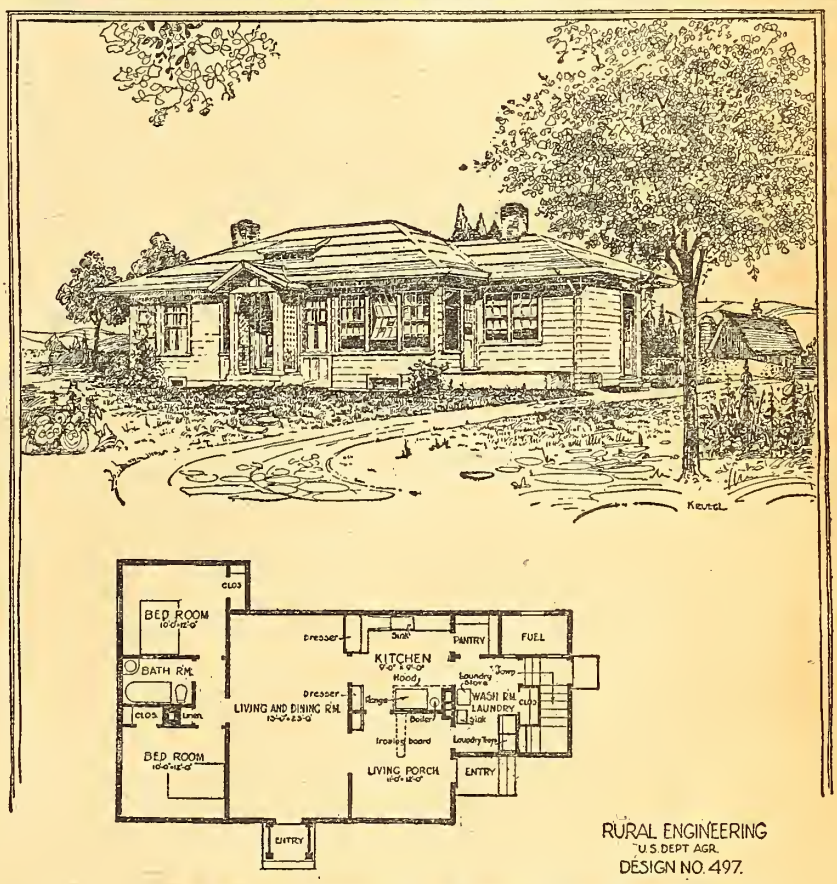
Prior to 1905 practically all power plowing was done by steam. If there was any machine in use at that time employing an internal-combustion engine as its source of power, the case apparently has never become a matter of record. Steam plowing had been in vogue for a number of years, especially in regions such as the Dakotas, Montana, and the Canadian provinces of the Northwest. Here were found bonanza farms consisting of thousands of acres, one crop of wheat sometimes paying for the entire farm. These large tracts, stretching away for miles in a level and unbroken plain, offered conditions which were suitable for these mammoth steam outfits weighing many tons.

Several factors had a bearing on the elimination of steam as a source of power for plowing and the substitution of the internal-combustion engine.

The fuel was bulky for the power transmitted, and the storage space on the engine was small. Several men were required. The steam engine as then constructed could not stand the constant strain and rough usage necessary in plowing. It was necessary to spend considerable time in care and repair, just as is required by the railroad locomotive after a five or six hour run.

There was a demand by operators for a machine which would do away with these disadvantages. Interest was shown by various manufacturers and their attention was directed toward the development of a machine using the internal-combustion engine.

Apparently, 1905 was the first year that a gas tractor advertised as a source



Waste Space at Minimum in This House for Small Family

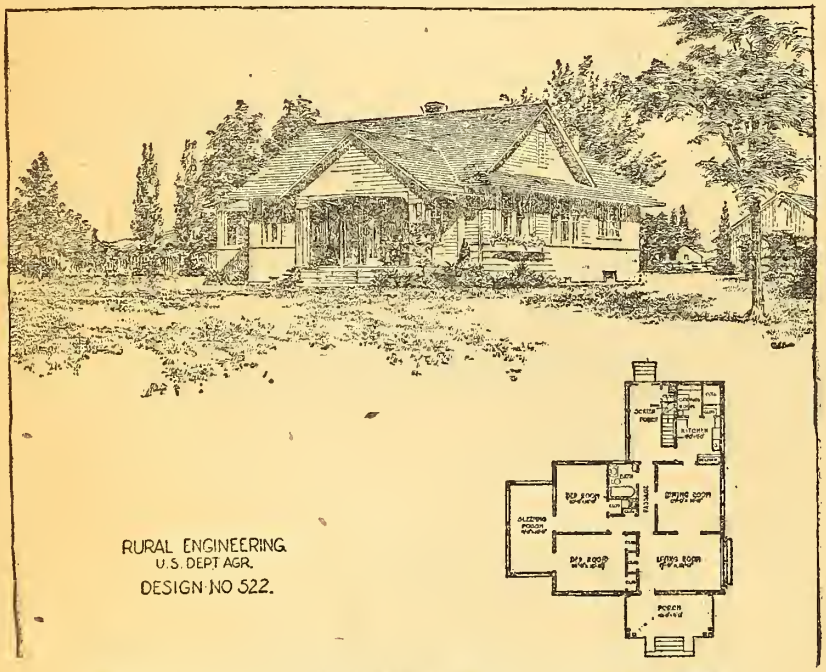
of power for plowing was placed on the market. This machine employed a double-cylinder engine, using gasoline for power and oil for cooling. It had a rating of 22 nominal and 40 actual brake horsepower and was capable of pulling six to eight 12-inch plows, depending on the soil. The weight was practically the same as that of the steam engines, about 9½ tons. While operators were not satisfied with the steam tractors on the market, there was then considerable prejudice against the gas tractor, so that machines were built which looked as much like a steam engine as possible. Perhaps this fact, to some extent, tended to overcome the prejudice and make for the popularity of the outfit.

By 1908 so much interest was manifest throughout the Northwest in the gas tractor that it was decided to hold a motor competition in connection with the industrial exhibition at Winnipeg, Canada. During the week of July 13–17, 1908, this contest was held, the first of its kind on the American continent. Machines were exhibited by five companies; two other companies entered, but withdrew. The rules of the contest limited the weight to 7½ tons to keep out steam rigs. This rule barred one gas tractor, as it weighed 9½ tons.

Early Tests Unsatisfactory

The tests upon which final award was based consisted of hauling, plowing, and manipulation. Some of the soil conditions were not ideal, and a bad impression was given in the hauling tests. The barred machine put on a private demonstration and made an excellent showing, using kerosene, except to warm up the motor at the beginning. The significance of this contest was that the weak points were shown and that it started the development of practical motors for small farms.

In 1909 a similar test was held at Winnipeg and six companies demonstrated machines. The contest was divided into four classes: (*a*) Internal combustion 20 horsepower and under, (*b*) 20–30 horsepower, (*c*) over 30 horsepower, and (*d*) steam engines. This contest created much interest in manufacturing circles, and many manufacturers were present to obtain useful information, which showed that they were alive to the possibilities attending the development of a successful tractor.



Designed Particularly for South; Airy in Summer, Open to Sun in Winter

At this time it was estimated that there were between 45 and 50 firms or individuals making, or attempting to make, tractors. Naturally, many were makeshifts, as the possibilities of "getting in on the ground floor" in an industry in the making were recognized. Another contest was held the same summer at Brandon, Manitoba, with practically the same machines entered as at Winnipeg.

To Winnipeg must go the honor of starting an idea which has done a great deal to develop the tractor industry rapidly. These tests were the forerunners of others in various sections of the United States and Canada that have given farmers the opportunity of seeing these machines at work and deciding on the merits of the individual tractors.

Tractor Shows Develop

In 1909 five tractors were exhibited at the Omaha Land Show. It was intended to make this exhibition a permanent feature, but failure to find suitable land for plowing caused the idea to be abandoned. Not until 1913 was anything on a large scale attempted in the United States. Then a demonstration was held at Fremont, Nebr., in which 23 manufacturers exhibited 39 tractors. From this time on, a national tractor demonstration has been held each summer, with an ever-increasing number of manufacturers exhibiting, until at the last show, held in Salina, Kans., in 1918, over 300 machines were entered, and 53 manufacturers were represented. A winter meeting is held each year at which manufacturers of tractors and accessories exhibit. This show has been held in Kansas City, Mo., for the past four years. Various local shows are put on each summer, and since 1916 these have continued throughout the summer, beginning in Texas and continuing northward. In March, 1919, the first large demonstration of the year was held in the South at Macon, Ga., which shows that the South is alive to the possibilities of tractor farming.

The following production figures show the enormous growth of the tractor industry in the comparatively short time it has been in existence:

FARM MACHINERY—FARM POWER, MARCH 15, ~~1915.~~ 1919

1912	11,500
1914	15,000
1915	21,000

FARM-EQUIPMENT CONTROL, UNITED STATES DEPARTMENT OF AGRICULTURE.

1916	29,670
1917	62,742
1918	132,697

MANUFACTURERS' ESTIMATED PRODUCTION.

1919	314,936

As previously stated, there was estimated to be between 45 and 50 firms or individuals making or attempting to make tractors in 1909. The Office of Farm Management, United States Department of Agriculture, has always kept in close touch with the tractor industry, and the files show that in 1919 there were 102 firms actively engaged in manufacturing tractors and 162 firms and individuals planning to begin in the near future.

Character of Tractor Changed

In the beginning the tractor was constructed to simulate the steam engine in appearance. As time passed and prejudice disappeared many refinements took place until to-day it is a compact, well-built machine capable of performing a multitude of operations. The first machines were heavy, rough affairs, capable

of pulling 8, 10, or more bottoms. It was soon recognized that if the industry were to prosper a machine would have to be built which would be practical for ordinary-sized farms. The result was that small machines came on the market, built to pull two and three plows. This type of tractor appealed to the small farmer.

There are now more two and three plow machines built than of all other sizes combined. There are, however, a number of companies still making a large-sized tractor, which is still used on the big farms of the Northwest and the Pacific coast.

How Tractor Was Transformed

From the rough machines of 1908 and 1909 with single cylinders, chain drive, cast gears, excessive weight, exposed working parts, and poor accessibility have been developed machines of light weight with inclosed working parts, friction and various gear drives, electric fixtures, radiator cooling systems, cut and hardened gears, multiple cylinders, air cleaners, kerosene carburetors, one-man control, and an easy accessibility—all this at a price of one-half to one-fourth of the cost of the early machines.

Owing to varying conditions, there are two types of machine on the market at present—the crawler and the wheeled type. The purpose of the crawler is to prevent miring down on soft ground. The same principle was employed by tanks in the late war. The wheeled tractors are more numerous and employ various devices to obtain traction, such as lugs, grouters, spikes, cleats, and extension rims. Again, some wheels have a device giving a stepping arrangement, as in the P–T wheel, which was developed by two Italian Army engineers. A few tractors employ both the crawler and wheel.

As yet the tractor industry is comparatively young, and what its ultimate effect on farming will be it is impossible to say. The trend seems to be toward motorized farms and the elimination of horse power. This is best shown by the fact that motor trucks are being purchased by farmers in ever-increasing numbers and that the motorized corn cultivator is coming into use in increasing numbers.

There are two important problems the solution of which would no doubt help the tractor industry to a great extent. These are the standardization of parts and a uniform method of rating. Manufacturers have not overlooked these things but have passed them by in the rush for business.

Let the range be one of the best in the market no matter what fuel is to be used. This is true economy.

Why and How Corn Crop Is Cultivated; Leave Undisturbed Under Some Conditions

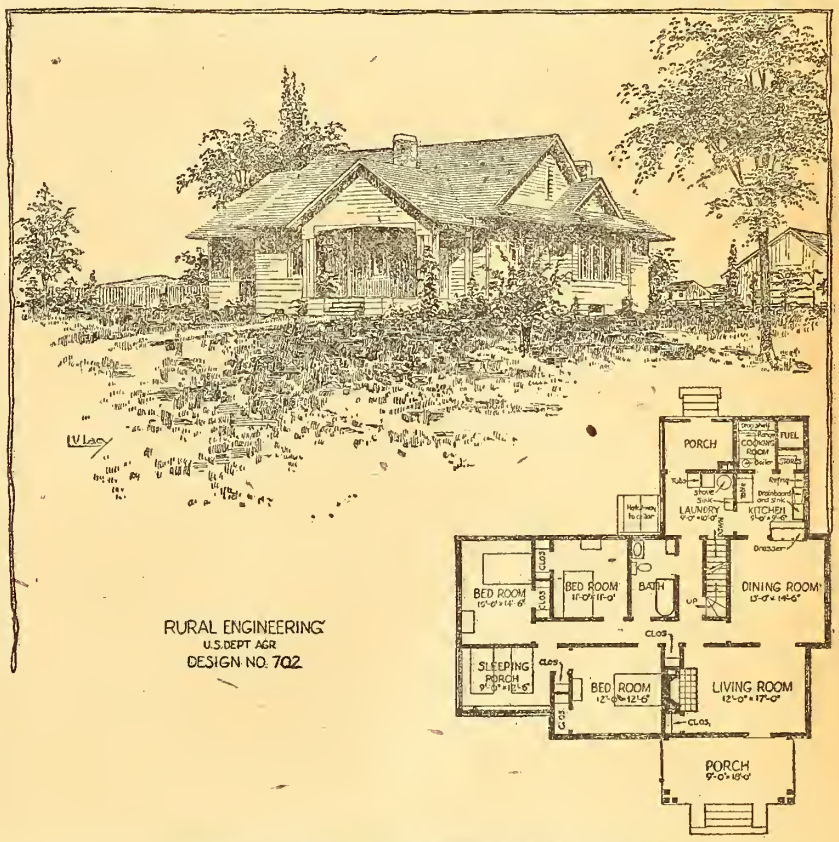
Approximately 100,000,000 acres of corn in the United States are annually given two or more cultivations, according to the United States Department of Agriculture. Cultivation is considered essential in the corn production. The general purpose of cultivation is to promote the early growth and later development of the corn plant. The usual type of cultivation is sometimes modified to meet special conditions, such as retarding the vegetative growth of the plant by cutting the corn roots in early cultivation. The kind of cultivation will also vary to some extent to meet the requirements of different methods of planting.

Some of the most successful corn growers begin their cultivation before they plant their crop. They claim that a deep cultivation of the soil at this time is of as much value as later cultivations. It causes the soil to warm more quickly, destroys early weed growth, and incorporates the vegetable matter more thoroughly into the soil.

Corn is cultivated to prevent weeds from robbing the corn of soil moisture and fertility, to put the surface in the best condition to absorb rainfall, to warm the soil by drying its surface quickly, and to save moisture by checking the capillary rise to the soil surface.

Corn should be cultivated often enough to keep down the weeds and to maintain a loose soil mulch until the crop has attained its growth. To satisfy this end a greater number of cultivations will be necessary when rains at intervals of a week or so cause the surface soil to run together and crust. This crust must be broken and the soil mulch restored or excessive run-off and evaporation will soon rob the crop of much-needed moisture. Promptness in restoring the soil mulch after each rain is of great importance. This work can be rapidly and less expensively performed by use of double cultivators widened, and by driving astride each alternate row, as by this practice the mulch is restored in half the time necessary to drive astride of every row.

Corn should not be cultivated so long as the soil mulch is in good condition and free of weeds. Corn should not be cultivated when the soil turns up in clods, breaking the corn roots and permitting the soil to dry out to a greater depth than it would if not cultivated.



Southern Home Remodeled to Meet Northern Conditions

GIVES NEW PLAN FOR FEEDING STOCK IN INTERSTATE TRAFFIC

Department Announces Provisions to Be Observed Under 28-Hour Law

Secretary Houston Approves Recommendations of Committee Representing Live Stock and Transportation Interests

Modifications in the plan of feeding live stock in transit under the provisions of the 28-hour law are announced by the United States Department of Agriculture. This law, which is aimed to provide proper and humane care of animals in interstate traffic, receives its name from the general requirement that carriers must not transport live stock for a period longer than 28 consecutive hours without unloading for feeding, water, and rest.

Important to All Stockmen

Under its authority in administering the 28-hour law, enacted in 1906, the Department of Agriculture has from time to time defined its interpretation of proper feeding and watering, and its evidence in these matters is used by the Department of Justice as a basis for making prosecution.

Proper feeding and handling of live stock in transit is a matter of concern to every stockman. To bring the new schedule of rations to the attention of all persons interested, the department requests the widest possible dissemination and free discussion of the new plan. It is of further interest that the rations in the schedule are largely the suggestions of practical stockmen.

At the time of the recent annual conference of the American National Live Stock Association at Denver, Colo., department officials conferred on this matter with representatives of the American National Live Stock Association, National Live Stock Shippers' Protective League, National Live Stock Exchange, Packers' Traffic Committee, and the Railroad Administration.

Department's Views Set Forth

The recommendations of the conference committee were approved by the Secretary of Agriculture and are incorporated in the following letter, setting forth the department's views as to the minimum requirements of the law:

"In order to avoid the difficulties experienced by transportation companies, shippers, and others in computing the amounts of feed which should be given to animals in the course of interstate transportation, the Bureau of Animal Industry, in connection with the enforcement of the twenty-eight hour law (34 Stat., 607), has given further consideration to the feeding, watering, and resting of cattle, sheep, swine, and other animals, and has determined that the use of a carload as a unit basis, rather than the hundredweight of animal, is a more satisfactory method for arriving at the amount of feed which should be given to animals.

"As a result, the conclusion has been reached that the handling of animals in accordance with the suggestion outlined below will meet the view of the Department of Agriculture as to the minimum requirements of the law:

Feed Requirements

"Horses and mules: Not less than 200 pounds of hay, or its equivalent, per car.

"Cattle: Not less than 200 pounds of hay, or its equivalent, per car.

"Sheep or goats: Not less than 100 pounds of hay, or its equivalent, per deck.

"Swine: Not less than 2 bushels of shelled corn, or its equivalent in ear corn or other grain, per single-deck car of not more than 17,000 pounds weight; not less than 2½ bushels of shelled corn, or its equivalent in ear corn or other grain, per double-deck car of not more than 21,000 pounds weight.

"Carload lots of hogs in excess of these weights should be fed an additional amount in the same proportion.

"Animals shipped in lots less than a carload should be fed a pro rata amount based on the above figures.

"Calves too young to eat hay or grain and shipped alone should be given a sufficient amount of some suitable feed, such as milk or raw eggs.

"The rations above indicated are to be given each time the animals are fed to comply with the provisions of the law.

Unloading

"The only practical methods for railroads to transport animals, other than hogs, without unloading during each period prescribed by the statute for rest, water, and feeding, are in 'palace' or similar stock cars and with emigrant outfits. There are cases in which exceptional facilities complying with the law make unloading unnecessary; for instance, specially equipped cars conveying show animals and blooded stock. In such cases care should be taken to observe the law. In all cases, if animals are not unloaded, sufficient space to permit all the animals to lie down at the same time in the cars must be provided.

"Hogs may be fed, watered, and rested without unloading, provided (*a*) the cars are loaded so as to allow all the animals to have sufficient space to lie down at the same time, (*b*) the trains are stopped for sufficient time to allow the watering troughs to be prepared and to allow every hog time to drink his fill, and (*c*) care is exercised to distribute properly through each car deck sufficient shelled corn, or its equivalent in ear corn or other grain, for each hog.

Unloading Pens

"All pens into which animals are unloaded must contain adequate facilities for feeding and watering and suitable space on which the animals can lie down comfortably for resting. Covered pens should be provided for unloading animals in severe weather.

"This letter to supersede the letter of the department dated May 31, 1913, on this subject."

Protects Animals and Benefits Public

Though not having the direct force of law, the foregoing official statement is the basis on which alleged violations of the twenty-eight hour law will be presented by the Department of Agriculture to the Department of Justice.

Proper feeding and care of live stock in transit, it is pointed out, protects not only the animals but also benefits the public and especially the grower, because the stock reaches the market in the best possible condition.

Purity and abundance are the two essentials of water supply. Wells and springs are the usual sources of farm water, but both may easily be contaminated, and the vicinity should therefore be inspected for possible sources of pollution.

Fatten hogs on self-feeders as far as possible. Hogs fed in this way save labor, save feed in proportion to the gain in weight made, and are ready for market sooner than those which are hand fed. Less feed is actually required to fatten when hogs are self fed. The system is therefore economical in every respect.

The tools and facilities required for keeping harness in repair are comparatively simple and inexpensive. A considerable portion of the repair work on harness can be performed by the aid of tools required for other purposes, but there are a few special devices that are desirable.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Food Officials Confer on Milk.

Plans for insuring a plentiful supply of clean, cool, pure milk for the consuming centers of the eastern and southern sections of the United States were formulated at conferences of Federal, State, and city food officials held recently in Philadelphia, Jacksonville, Fla., and New Orleans, according to officials of the United States Department of Agriculture in charge of the enforcement of the Federal food and drugs act. The control of milk under food and health laws is largely a problem for municipal food and health officials, as the bulk of milk consumed in towns and cities is produced near by.

Milk which is shipped into interstate commerce, as is the case in cities located near State lines, comes under the jurisdiction of the Federal food and drugs act. Federal food officials are cooperating with State and city officials in making the control of the milk supply more effective this season than ever before. More than 200 cities throughout the United States have laboratories equipped for testing and analyzing milk. Dairymen and milk distributors are giving special attention to sanitation in producing and distributing milk. Much milk is rendered unfit for food every season because of carelessness in handling or lack of knowledge of correct principles of sanitation.

The Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, the State experiment stations, and many of the city food and health officials will furnish upon application information regarding improved methods for handling milk in a manner that will insure it reaching the consumer under all ordinary circumstances in the best possible condition.

What Is "Bread"?

Before the war the term "bread" was understood to mean bread made from ordinary wheat flour. During the war it might have meant almost anything on which to spread butter or its substitutes. But what does it mean now?

At the time the Food Administration called for the use of substitutes in the manufacture of bread, so much publicity was given the ruling that the chances of a purchaser being deceived into believing that the article he carried home from the bakery as bread was made wholly from wheat flour were slim; and no objection was made under the food and drugs act to the labeling and sale of the product, conforming to the Food Administration's rulings as bread.

The restrictions on the use of wheat flour in bread have recently been removed, and any product now sold under or labeled with the unmodified term "bread" should, if brought within the jurisdiction of the act, be prepared from wheat flour only, says the United States Department of Agriculture, which enforces the food and drugs act. If wheat flour substitutes are used, their presence should be clearly stated on the label. The same principle applies in the case of crackers.

Find Value in Animal Fats.

Recent experiments in the Office of Home Economics of the United States Department of Agriculture were made on the digestibility of certain animal fats not used extensively in a culinary way in this country, but used commercially to a certain extent. On the basis of the experiments it is concluded that goat's butter, hard-palate fat, horse fat, kid fat, oleo oil, oleo stearin, ox-marrow fat, ox-tail fat, and turtle fat, when eaten in amounts equivalent to the quantity of other fat one would eat in the normal dietary, are well assimilated and should prove wholesome sources of fat for human consumption. The experiments are described in Bulletin 613, just issued by the department.

Hold Club Meetings in Kitchen.

Holding club meetings in the kitchen instead of the parlor is unusual, yet it is proving a successful departure from the established custom in Monroe, La. But the kitchen in which the Monroe meetings are held is not an ordinary one. It is the center of the home demonstration activities of Monroe and Ouachita Parishes. The kitchen, with complete equipment, was donated by the chamber of commerce. The cabinets, refrigerators, work tables, and stools are in white, giving a wholesome and pleasing appearance. Appropriate exercises were held on the occasion of the presentation, and luncheon was served to about 750 people.

Using the kitchen as a laboratory, Miss Lottie Powell, the local home demonstration agent, conducts daily classes in many household subjects, including menus, canning and preserving, invalid cooking, food for children, and proper diet. At club meetings in the kitchen domestic plans, new recipes, and other such topics are discussed.

Boston to Have Child Survey.

The weighing and measuring campaign for children under 5 brought out last year the fact that 5,000 children in Boston were below normal weight. The child-welfare committee of the city has decided to investigate the reasons for this condition, and after the survey to recommend constructive measures. One section of the city, Roxbury, has been taken as demonstration ground. In that district there are known to be 921 children from 10 to 16 per cent under weight. Ten per cent of the entire Boston group, or 500, will be included in an intensive study, and the final analysis is expected to be a fair basis on which to judge the needs of the 5,000.

A physical examination of each child is thought necessary, and it is expected to divide the 500 into three classes. One class will consist of children who need to have the food and hygiene of their lives regulated; another group will be children who need clinic care and supervision in the home; and the third will be children really sick and needing bed care in the hospital.

Agencies best qualified to give the care and advice which each group needs will be asked to assume the responsibility of these children and report the exact condition of each child every month. The home-demonstration agent from the United States Department of Agriculture and the State college, who is one of the committee, will give both practical and scientific advice to the mothers.

Traveling Grain-Grading Schools.

That country grain dealers, county agents, and farmers may have an opportunity to familiarize themselves with the grading of grain under the Federal standards for wheat, shelled corn, and oats, the Ohio State University and the Ohio Bureau of Markets have united on a plan for a series of demonstrations throughout the State. In addition, there will be discussions on marketing problems from the

farmer's viewpoint, buying wheat by grade, and how the Government will handle the wheat crop. The demonstrations and exhibits in grain grading are called grain grading schools. They will be conducted by Federal grain supervisors from the Bureau of Markets of the United States Department of Agriculture.

Farm Bureau Membership Gains.

Farm bureaus are apparently appreciated and are serving the farmers' needs in New York State, as shown by big increases in membership this spring. There were in the State on April 1 a total of 62,554 paid members. The membership represents nearly 30 per cent of the farms in the 55 counties having farm bureaus. This is an increase of 18,951 members since July 1, 1918. The figures represent an average net gain for each county of 344 members, or from 793 to 1,137. The percentage of members is increased from 20.4 to 29.3. In seven of the counties over half of the farms are represented in the farm bureau, and in Tioga County over two-thirds of the farms are represented. In total number of members Otsego County leads, with 2,232. The five leading counties had a total of 10,773 members.

Credit for this noteworthy growth, State farm-bureau leaders say, goes to local community committeemen, particularly the chairman and the leaders. With these leaders now rests the successful carrying on of definite and healthful community programs. The aim of the association leaders is to have 50 per cent of New York farms represented in farm bureaus in 1920.

Cooperative Exchange Organized.

Members of the county farm bureau at Preston, Conn., have completed an organization under the name, "Preston Co-Operative Exchange, Incorporated," with a charter membership of 20 men. This exchange is capitalized at $10,000 divided into shares at $25 each. Any farmer may become a member by subscribing for one or more shares. Provision is made in the by-laws that any member desiring to withdraw may do so, with the approval of the board of managers, upon giving three months' notice in writing and returning his stock, for which he will receive not less than par value.

That all bills for goods sold to members shall be paid before the goods are delivered is required by the by-laws. This is essential to the success of such an organization and the stockholders strengthened the by-laws with a vote that no exceptions shall be made. By paying cash at the car for goods, the paid-in capital becomes a revolving fund, being used only to secure and open cars upon arrival.

Forestry Conferences Planned.

Conferences for the purpose of working out a policy of forestry for the United States are being planned by the Forest Service, United States Department of Agriculture, to be held in 10 or more cities in various sections of the country. The first conference will be in Washington on or about May 20, and is to be attended by men representing especially Maryland, Delaware, New Jersey, Virginia, and West Virginia. The definite date and the dates for the conferences to follow are to be announced as soon as arrangements can be completed.

State officials and men known to have a deep interest in forestry problems will be invited to attend the conferences for their section.

"The public forests we have now are not going to meet the requirements of the country," said Col. Henry S. Graves, Chief of the Forest Service, in a recent address. "No matter how big a program of public forests we have we still must recognize that a large portion of the benefits which have got to come from forestry in this country must come from forests now privately owned. The Forest Service has started vigorously to bring about a reasonable practice of forestry on all private lands which remain in forests. The program includes as an essential part a greater public forest program, more extensive acquisition of forests by the Federal Government, by the States, and by municipalities. A great many other things will have to go into the full program, but the great purpose is to get the forests of this country under a rational system of management."

Watch Your Spuds for Potato Wart.

Keep a sharp lookout for potato wart this season and report all suspicious cases and send specimens immediately to your county agents, your State experiment station, or the United States Department of Agriculture, and thus aid in controlling this menace. If this dangerous new disease gets established it will put a stop to potato growing in the infested area and lead to a quarantine of the locality. At present potato wart has appeared only in a few gardens in mining sections of Pennsylvania, which are now under strict quarantine. It reached there in a shipment of European potatoes in 1911 or earlier. Thirteen million bushels came in that year and some of them may have been infected; consequently every potato grower is urged to watch his spuds, particularly at digging time, for signs of small, warty growth, particularly at the eyes. These growths may increase until ultimately the entire tuber becomes a spongy, warty mass. The United States Department of Agriculture has published a circular which describes the wart disease.

Lettuce Grown on Field Scale.

Lettuce is being grown on a field scale in the Imperial and Salt River Valleys of California, fields of from 30 to 40 acres being not extraordinary. At the height of the production season—January and February—it is not uncommon for 26 carloads of lettuce a day to be shipped to the middle western and eastern markets. This lettuce, grown under irrigation, is produced by hand labor and is of extra fine quality. The industry was developed on a commercial basis about three years ago and during the last two years has been one of the leading agricultural occupations of the State. These localities also produce carrots, peas, cauliflower, and table beans on a less extensive scale.

Label Fruits and Vegetables to Comply with U. S. Food Law

Fruits and vegetables in package form should be labeled with the quantity of contents when shipped within the jurisdiction of the Federal food and drugs act, say the officials of the Bureau of Chemistry, United States Department of Agriculture, in charge of the enforcement of that law.

The requirements of the net-weight amendment to the Federal food and drugs act in its application to the labeling of fruits and vegetables in package form have been widely distributed among shippers and other interested parties. Shippers of fruits and vegetables who fail to comply with the requirements of the law are liable to prosecution in the Federal courts, say the officials. Food inspectors have been instructed to watch interstate shipments of fruits and vegetables during this season to see that the packages are labeled with the quantity of contents in accordance with the requirements of the law.

Complete rulings regarding the labeling of the quantity of contents of fruits and vegetables coming within the jurisdiction of the Federal food and drugs act and regarding certain exemptions, which have been published in Service and Regulatory Announcement No. 21, will be mailed upon application to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI MAY 28, 1919 No. 43

MACHINERY FOR ADMINISTERING THE FEDERAL HIGHWAY LAW

Secretary Houston Gives Views at Request of Chamber of Commerce

Points Out That Present State and Federal Cooperation Provides Expert National Commission for Road Work

Secretary Houston, in response to a communication from a city chamber of commerce requesting his views regarding the creation of a Federal highway commission and the wisdom of taking the Federal supervision of highways from the Department of Agriculture and placing it under such a commission, has sent the following reply:

Fundamental Considerations

"I have your letter of May 2, in which you state that your chamber of commerce has been asked to adopt a resolution calling on the Congress of the United States to create a Federal highway commission, and that you note that such resolution has been adopted by a number of commercial organizations, including the United States Chamber of Commerce. You ask for an expression of my views on the matter, and particularly whether, in my opinion, it would be wise to take the Federal supervision of highways from the Department of Agriculture and place it under such a commission as that proposed.

"Before expressing my views, it might be well for me to point out certain fundamental considerations which should be borne in mind in determining any sound policy of highway administration and development: (1) The roads in each section of the country are of varying degrees of importance in the service which they render or may render to the particular locality, to the State, and to the Nation as a whole; (2) this is a big country and the traffic conditions and needs vary greatly from section to section; (3) the State highway departments, being in immediate touch with local conditions, are best able to classify the roads properly on the basis of the economic purpose which they may serve; (4) the Federal Government, under the present Bankhead Federal-aid road act, is cooperating in the improvement of the roads of greatest importance, the classification of which is fixed by the State highway departments; and (5) when this classification has been carefully made and by agreement between the highway departments of adjoining States, the roads of first importance generally meet at State boundaries, and therefore become interstate highways of Nation-wide utility. The Federal Government, under the present law, is aiding the State highway departments in the classification of their roads on the basis of importance and needs, and Federal aid is rapidly being extended for their improvement on projects submitted by the States and approved by this department.

Additional Machinery Not Needed

"Having these points in mind, I have been unable to see the need for the creation of a separate Federal highway commission or the wisdom of substituting for the present cooperative program a plan which would commit or limit the Federal Government to the construction of two Federally owned and maintained trunk lines in each State of the Union. There was a bill introduced in the Senate of the United States on February 13, 1919, embodying these suggestions. This proposed legislation provides for a Federal highway commission of five, each receiving a salary of $10,000 a year, whose duty, among other things, would be to establish, construct, and maintain a system of highways 'to comprise not less than two main trunk line roads in each State, and joining the National Highway system in the adjacent States and countries.' The commission is given the power to select the trunk line roads to be constructed after having requested the State highway departments to recommend routes. The Federal Government is to assume the maintenance of these roads. The commission is furthermore empowered to take over the work of all existing Federal agencies relating to highway transportation and '*to purchase, lease, rent, operate, and maintain such motor and other transportation facilities as it may deem necessary in performance of its duties under this act.*'

(*Continued on page 13.*)

LAND UTILIZATION STUDIED BY CONFERENCE AT CAPITAL

Economists and Others Outline Plans for Important Investigations

Consider Problems at Base of Improvement of Rural Life and Institutions; Better Cooperation of Agencies Desired

An important conference, called by the Secretary of Agriculture, met in Washington May 15 to outline plans for the investigation of problems of land utilization. Those invited to attend the conference include a number of well-known economists connected with universities and agricultural colleges, representatives of farmers' organizations, State commissioners of agriculture, directors of experiment stations, and heads of commercial and development organizations.

Land Problems Fundamental

It has become apparent that economic problems connected with land are at the foundation of all movements for the improvement of rural life and institutions, says a statement issued by the Department of Agriculture. A comprehensive program of investigations was to be worked out in the conference, covering methods of increasing the area of land in farms; better and more complete utilization of land now in farms; causes, effects, and general significance of tenancy; relations of landlords and tenants; and policies in use in various countries for improving the economic and legal relationships of farmers to the land they cultivate.

The conference also was to consider means of effecting a greater degree of cooperation between the divisions of the Department of Agriculture, other Government departments, and State and private agencies engaged in studying the problems of land utilization and land tenure.

The following persons attended the conference, which continued the remainder of the week:

C. E. Allred, College of Agriculture, Knoxville, Tenn.; Prof. R. P. Brooks, University of Georgia, Athens, Ga.; H. T.

Cory, Reclamation Service, Interior Department, Washington, D. C.; H. M. Cottrell, Little Rock, Ark.; Prof. R. T. Ely, University of Wisconsin, Madison, Wis.; J. N. Hagen, Commissioner of Agriculture, Bismarck, N. Dak.; Arthur J. Hirsh, Bureau of the Census, Washington, D. C.; Arlie Hopkins, State Capitol, Lansing, Mich.; Prof. F. B. Linfield, Director of Experiment Station, Bozeman, Mont.; S. A. Linsey, Tyler, Tex.; Prof. Theodore Macklin, College of Agriculture, Manhattan, Kans.; A. G. T. Moore, Southern Pine Association, New Orleans, La.; J. A. O. Preus, auditor for the State of Minnesota, St. Paul, Minn.; Charles L. Stewart, University of Arkansas, Fayetteville, Ark.; Alfred H. Stone, Dunleith, Miss.; Clement S. Ucker, Baltimore, Md.; Prof. Elwood Mead, College of Agriculture, Berkeley, Calif.

Harmful Pine Mice May Be Trapped or Poisoned

Pine mice, which usually follow moles in their tunneling and burrowing through the soil, have inflicted considerable damage recently in Virginia, Maryland, and other Eastern States, especially to vegetables stored in the ground and to early-sown garden seed. The mole often gets the blame for rascality which is wrought by the field mouse. Moles live chiefly on worms and insects and do not destroy seeds of vegetables, while field mice gain a living from stealing seed and root crops.

These pests can be destroyed by trapping on small areas where the infestation is not extensive and where it is undesirable to put out poison. Twelve to twenty traps an acre may be used. The tunnels of the pine mouse should be excavated sufficiently to admit the trap on a level with the bottom, a garden trowel being used for digging.

Bait at Strategic Points

Where mice are abundant on large areas poisoned bait should be distributed in teaspoonful quantities in the mouse runs and at the entrance of burrows. A mixture containing 1 ounce of powdered strychnine, 1 ounce of powdered bicarbonate of soda, and one-eighth ounce of saccharine should be sifted from a perforated tin box over 50 pounds of crushed wheat or 40 pounds of crushed oats, mixing the grain constantly so that the poison will be uniformly distributed. This dry mixture may be kept indefinitely without danger of fermentation.

Where it is necessary to use whole oats, the poison must penetrate the kernels, because mice hull the oats before eating them. Hence it is essential to dissolve 1 ounce of strychnia sulphate in 2 quarts of boiling water.

SOLDIERS RETURN TO FARMS, DEPARTMENT SURVEYS SHOW

Big Percentage Tell Investigators of Intention to Till Soil

Farm-Labor Situation Not Entirely Satisfactory, But Promises Steady Improvement; Reports from Army Camps

The majority of soldiers who entered the Army from the farms are returning to them immediately after receiving their discharges from military duty, according to reports from farm-help specialists of the United States Department of Agriculture. This furnishes the brightest spot in a situation that is not yet entirely satisfactory, but that promises steady improvement, although there is still no indication of a decided movement back to the farm by men who were attracted from food-production work by high wages in industrial pursuits.

Figures Refute Statements

Careful surveys made in Army camps by the department's farm-help specialists furnish ample proof to refute statements that have appeared in the press that from 75 per cent to 90 per cent of the men who were called by the Army from the farms are not returning to them. In a Virginia camp the specialists found that during the first three weeks in April 98.2 per cent of such men discharged actually returned to the farms. During the week ending April 5 the specialists interviewed 2,021 men at this camp. It was found that 933 were from farms and that all but 15 of that number intended to return. During the following week 2,108 men were interviewed. It was found that 691 were from farms and all but 14 intended to return. The next week 716 men were interviewed. Of this number 364 had formerly been employed on farms and all but 5 intended to return.

These figures are the actual result of personal interviews with each man. It was found also that a number of men who had previously been engaged in other occupations expressed a desire to take up farming. During the three weeks mentioned 2 per cent of the men discharged and who were not farming when they entered the Army intended to take up farming.

Study Agricultural Courses

Of the 1.8 per cent of the soldiers who had been on farms previous to entering the Army, and who did not intend to return, the reason given by 1 per cent was that the men were disabled and therefore unable to do heavy farm work. At least half of this number are taking up vocational courses in agriculture which will fit them for a class of farm work which does not require hard physical effort. Practically the entire remaining eight-tenths per cent had been farming with their parents or were tenants and considered it too late to farm this year as other help had been secured.

A similar report from the farm-help specialist in charge of the work at Camp Gordon, Ga., shows that during four weeks in April 3,291 farmers were discharged from that camp. Of that number 83 were directed to situations on the farms in Georgia, while 2,342 said they were returning to their jobs or homes on the farms, and the remaining 866 did not desire to go back to farm work.

At another camp 30 farmers were personally interviewed, and 29 stated that they were going back to the farm immediately on receipt of their discharges.

MORE CHICKENS IN SOUTH, AND STOCK IS BETTER, TOO

Increased interest in poultry raising in the general farming sections of the South, with purchase of much better stock, is reported by a specialist of the United States Department of Agriculture who recently investigated the status and activities of Old Mother Hen in Alabama, Louisiana, Mississippi, and Texas. Producers are working not only to supply the home market, but eggs are also being shipped from Mississippi, Alabama, and Texas to Memphis, St. Louis, New York, and other marketing centers.

The advantages of the South for poultry keeping are manifold and include a propitious climate, which enables the flock owner to produce eggs to better advantage during the winter season, while he also can make use of simpler and cheaper houses than can his northern associates. Furthermore, the favorable weather conditions in the South promote the feeding of green stuff to the hens practically the year around.

Must Meet Obstacles

There are certain disadvantages, too, such as prevalence of insect pests, including mites, lice, and in some sections mosquitoes and stick-tight fleas, as well as the blue bug in parts of Texas. Furthermore, southern markets are not high paying consumers of locally produced eggs. This is particularly true in the resort section of Florida, where for many years the trade has been accustomed to import its eggs from the North and West. It does not readily transfer this business to local producers. In addition, the southern market for eggs is usually "spotted," due to fluctuations in the tourist traffic.

During the heat of summer egg losses in the South aggregate a considerable

sum, largely due to the development of fertile eggs. It is essential that southern producers exert every effort to produce and market only infertile eggs in order to control this source of loss. A common opinion prevails that the leghorns are particularly adapted to southern conditions, but according to the experience of the specialists of the United States Department of Agriculture southern poultrymen realize just as satisfactory results—and in many instances more favorable returns—from the maintenance of the heavier, general-purpose birds.

A number of failures in the poultry business on the part of newcomers in Florida, who embarked in specialized production of poultry products, are explained by the fact that most of them were unfamiliar with local conditions and started on too extensive a scale. A beginner in chicken raising in a new locality should always start on a small scale and expand his operations as he learns more about local conditions and as his returns from the business justify. For the man who is experienced in poultry raising and who will adapt himself to new conditions readily and not take excessive risks and who is supplied with plenty of working capital, the Southern States, apparently, offer a fair opportunity.

Texas Raises Many Turkeys

Many turkeys are raised in Texas, as well as a considerable number in Mississippi and Alabama and in western Florida. As a general proposition these birds are raised in small flocks on general farms, where plenty of range is available. Under such conditions they usually yield a profitable income. Not many ducks are raised in the South, but considerable interest is displayed in goose production, while guineas also are raised on many farms. Guinea eggs are used on the home table, as well as being marketed, but as a rule the guineas are allowed to run wild and are not produced on any scale for market purposes.

A system of sheep farming that is to be continuously successful can not ignore either wool or mutton. In many cases the two products will be worthy of equal consideration. In others either one may be emphasized according to the peculiarities of conditions, management, and marketing.

Young pigs should be given their feed in such a manner that each individual pig gets its share. The simplest way to accomplish this is to allow the pigs to eat from a properly constructed feed trough, one that will keep the pigs out of the feed and will lessen the possibility of crowding.

Peruvian Alfalfa Is Most Popular Variety on Yuma Irrigation Project

Peruvian alfalfa, introduced into the United States about 20 years ago, has developed into the most popular variety on the Yuma irrigation project, where a substantial industry in the production of alfalfa seed has been established. Although Peruvian in general is like ordinary alfalfa, yet the crowns are more erect and have fewer stems, while the leaves and stems are quite hairy, giving the plants a slightly gray color. The leaves are longer and as wide or wider than those of ordinary alfalfa. Because the stems become coarser and more woody when allowed to mature beyond the flowering stage, it is desirable to cut the Peruvian crop not later than when one-half in bloom, where first-class quality hay is desired. In general, the Peruvian alfalfa has yielded decidedly more hay to the acre than ordinary alfalfa, this increase being about three-quarters of a ton per acre. This, combined with the fact that it is much more certain to produce a good seed crop than the ordinary variety, causes its extensive use.

Can Not Withstand Severe Cold

Peruvian alfalfa can not withstand severe cold, and hence can be grown successfully only in mild climates. It begins to grow earlier in the spring and continues to grow later in the fall than the common variety. As a rule, Peruvian can be grown only in sections where the minimum temperature is not lower than 10 degrees above zero. In the main, the soil requirements and seed bed preparation are the same for Peruvian as for common alfalfa.

The alfalfa should be cut when the plants are just coming into blossom, or better, when the basal shoots appear, unless the weeds threaten to choke it out before this stage is reached, in which case earlier cutting is recommended. The earlier cuttings should not be mowed low, as the alfalfa plants will not start so quickly and are more likely to be choked out by weeds. If the first cutting should be light, as is usually the case if the seed is sown in the spring, it may be left on the land as a mulch. However, if it is heavy enough to smother the alfalfa plants, it should be removed. When the plants turn yellow the crop should be cut immediately and removed from the field. If the stand becomes thin or patchy, the field should be plowed and reseeded.

50 Per Cent of Area Cropped

During 1917 the Yuma irrigation project produced 35,000 acres of alfalfa, of which 4,600 acres were devoted to seed production. About 50 per cent of this area was cropped with Peruvian alfalfa. Recently the Peruvian alfalfa has become so popular in the Southwest that the seed has sold for about double the price of ordinary alfalfa of similar quality and germination.

The Peruvian is a surer seeding variety than the other members of the alfalfa family. It sets seed under less exacting conditions, while it does well throughout the entire Southwest, from Arizona to northern California. Generally speaking, but little seed can be imported from Peru, because it is grown there only in small patches, and on this account it is difficult to purchase more than 100 or 200 pounds of seed at a time. In the Yuma Valley the range in seed yield varies from 100 to 1,200 pounds per acre, a good average yield being between 500 and 600 pounds, equivalent to from $8\frac{1}{3}$ to 10 bushels.

NITRATE ORDERS BEFORE JUNE 1

Farmers who have ordered nitrate of soda from the Department of Agriculture must have their orders for shipment reach Washington by June 1. All shipping orders received after this date will be canceled, according to the Department's Bureau of Markets, which states that it is necessary to conclude distribution of the nitrate of soda and close the arrangement with the War Department through which the nitrate was secured.

A rank growth of weeds becomes an asset when plowed under before they make seed.

As the type of animal necessary for the production of large yields of milk is entirely different from that of the beef animals, it has been impossible to produce a breed which would combine these functions and be of superior merit for both purposes.

One of the first essentials to satisfactory marketing arrangements is standardized products. Cans, jars, and other containers should be uniform in pack, appearance, quality, and condition. Every container which is fully up to the standard represented by the label or brand will then be an advertisement in itself and often a guaranty to further purchases.

Treating Watermelons for Stem-End Rot; Disinfectant Used to Reduce Big Losses.

A simple and inexpensive treatment of the stems at the time watermelons are loaded for shipment will prevent stem-end rot, the most menacing disease that melon growers in the South Atlantic States have to contend with, say specialists of the United States Department of Agriculture. This disease, which usually develops during transit to market, causes an annual loss to the growers of Florida, Alabama, Georgia, and South Carolina of over 2,500 carloads, worth approximately $1,166,000, according to market values. A freight-car space equivalent to over 2,000 cars for 30 days is wasted each spring from the same cause. The treatment consists of applying with a brush to the freshly cut stems a disinfectant paste made of common starch with which has been mixed 6 per cent of copper sulphate, commonly called bluestone.

It is estimated that the disease causes a loss of 20 per cent of the crop. Last year the Department of Agriculture, through the Bureau of Markets, examined 144 carloads, in which losses ran 22 per cent, and in some cases as high as 100 per cent. The treatment, which has been tested by the department during the past three seasons, has shown uniformly favorable results. The cost should not exceed 50 cents a car for material, and $1 a car for labor. Application of the paste, if properly made, will not interfere with the normal speed of packing the car.

How to Make the Paste

In making the disinfecting paste, use a large kettle of enameled ware, as the bluestone attacks iron or tin. Place 3½ quarts of water and 8 ounces of bluestone in the kettle and bring the mixture to a boil. While it is heating mix in a separate vessel 4 ounces of starch with 1 pint of cold water, stirring until a milky solution free from lumps is obtained. As soon as the bluestone is entirely dissolved and the solution is boiling, add the starch mixture, pouring it in a slow stream and stirring the hot solution vigorously to prevent the formation of lumps. Continue boiling and stirring until the starch thickens evenly, which should not require more than two minutes after the addition of the starch. It may be tested at intervals by allowing it to run from the end of a paddle.

The paste seems to be more readily applied when fresh, but if it is desired to make up a quantity at one time it can be depended upon to keep a week or two by using only one-fourth or one-half of the proportion of water previously specified, and then diluting the resultant thicker paste to the proper consistency as needed. Fruit jars with glass or enameline tops make convenient containers.

Treating the Melons

Before loading the melons the car should be well bedded with clean, dry straw. Pine needles may be used if they are entirely dry, although straw is better. Wet straw should not be used, as the moisture will hasten the decay of the melons. Loading should be done the same day the melons are clipped from the vines. Only those melons should be loaded that have a firm, green stem. As soon as the melons are packed in a car the stem should be recut and the paste applied with a round brush to the freshly cut stem, care being used not to smear the melon.

Other Precautions

In addition to treating the stems other precautions should be taken in combating this disease. Weeds in melon fields and along ditch banks should be cut and burned in the winter. From the time the melons are on the vines all cull fruit should be collected in boxes or barrels and hauled from the field weekly.

Spraying with Bordeaux mixture for anthracnose will probably help control stem-end rot. In harvesting melons do not cut or handle decayed fruit. Cut the melons with long stems and load into cars with the least possible delay and the utmost care to avoid bruising. See that the car ventilators are open. As the packer arranges the melons in tiers in the car he should place the stem ends outward so that they may be readily cut and the paste applied. Freight cars that have contained decayed melons or yard refuse should be washed clean and sprayed with a 2 per cent bluestone solution before reloading.

THICK PLANTINGS PROTECT LOCUST TREES FROM BORERS

Plantations of the locust tree can be successfully protected from the borer and grown profitably on a commercial scale if the trees are planted in thick stands or mixed with other trees, so as to produce a densely shaded condition during the first 10 to 15 years. Investigations of the United States Department of Agriculture showed that more trees were destroyed by borers in tracts which had been pruned occasionally or closely grazed or in which fire had killed out the underbrush, thus destroying the natural shade produced by weeds and shrubbery.

The denser the underbrush about the trunks of the trees the less is the damage done by borers. Trees growing from 2 to 3 feet apart were seldom injured, while near-by isolated trees were riddled by borers.

Condition Necessary for Borers

All trees and all parts of the tree are not subject in the same degree to attack by the borer. Rough bark provides crevices in which the borers deposit their eggs. Young trees less than 1½ to 2 inches at the base are not attacked unless the bark is rough. On younger trees the borers are found at the base and near rough crotches. Trees with trunks more than 5 or 6 inches in diameter rarely contain the insects. On such trees the larger branches frequently are infested, but such injury is seldom common enough to do much harm. Protection from borers is necessary for only a comparatively short period during the tree's growth. Under good growing conditions this time should not exceed 10 years.

Treatment of Shade Trees

The locust is widely planted for ornamental and shade purposes. It is highly desirable because it grows readily in a variety of soils and situations. It grows rapidly and forms a shapely crown when planted in the open. But it is frequently attacked by borers. This is because shade trees are planted singly and in the open, thus furnishing favorable conditions for attack.

Young borers can be killed readily by the use of an arsenical spray. Spraying will be necessary only every two or three years unless badly infested trees near by are not treated. As a rule spraying will not be needed after trees reach 6 inches in diameter. Trees of that size are usually immune from attack, but should be watched.

Locusts make such desirable shade trees that they should not be neglected and allowed to become injured or destroyed by borers. The increasing value of black or yellow locust for many purposes makes it a profitable tree to grow commercially and emphasizes the importance of protecting it from the borer. Information concerning the care of both shade trees and commercial plantings of locust is included in Bulletin 787, soon to be isssued by the United States Department of Agriculture.

The failure to employ modern methods of lightening labor in the house is a great hardship in many farm as well as city homes.

Horses Deserve Protection From Flies In Hot Weather; Sponge Baths Helpful

Stable flies are a source of keen annoyance to work animals during the heat of summer. Every owner who has the welfare of the dumb beasts at heart should strive to alleviate as far as possible the discomforts to which the horses are exposed.

The most logical method of abating the fly nuisance is to eliminate all breeding places, such as manure piles. The Bureau of Entomology advises that manure be kept in fly-tight pits or bins until such time as it can be hauled to the fields. Pits should be conveniently located so the manure can be easily thrown in at the time of cleaning and so constructed that it can be readily removed. It is essential that flies be prevented from reaching the manure, but, as some of them will, even though great care is exercised, it is advisable to place a flytrap on the pit.

The coal-tar sprays used in combating the fly evil in the dairy stable are also efficient in driving the winged pests away from the horses. Among the best of these is a solution of 100 parts of fish oil, 50 parts of oil of tar, and 1 part of crude carbolic acid. It may be prepared at home at a cost of about 35 cents a gallon. This spray, as well as kerosene emulsion and other fly repellants containing coal-tar products, fish oil, resin, and oil of tar, are best applied with an inexpensive spray pump. It is preferable to give the horses a hasty spraying early each morning before they go to work. This brings best results from the use of the fly eradicator.

Sponge Baths After Work

For the general comfort of the work animals when they come from the field at night it is recommended that after the harness has been removed each animal be given a sponge bath with a solution of cool, salt water. In case there are any work galls or shoulder sores, these injuries should be treated with white lotion, which is one of the most healing and soothing preparations of its kind for use in warm weather. White lotion is composed of a mixture of 6 drams of zinc sulphate (white vitriol), 1 ounce of lead acetate (sugar of lead), and 1 pint of water. It is efficient in curing wounds, sores, summer galls, and fistula, and should be applied three times daily for best results.

The prevalent sentiment among horsemen is that it is better to house and feed the work horse during the summer than to attempt to run the animals on grass with a scant supply of grain and hay. Grass is not a desirable material to serve as the basis of the work-horse ration. The practice of turning work animals out on Sundays to eat grass, to which they are unaccustomed, is a prolific source of colic and other digestive disorders. Generally the animals would be better off in a cool, darkened stable, where they could be carried on half rations of grain during idleness.

Night Grazing Harmful

Where work horses which are fed a full allowance of grain are turned out to graze each night they usually are in poor condition for work next day, as the extra feed they have consumed merely tends to increase the tax on their digestive capacity. However, where the stables are hot and ill ventilated it is preferable to expose the horses to digestive troubles on the pastures rather than to attempt to carry them in the barns.

The feet of the work animals should be examined frequently during the summer, in order that accumulations of dirt may be removed. A few moments devoted to scraping out the hoofs each morning and evening will add to the comfort of the beasts, as often such foreign materials as nails or stones lodge in the wall or sole of the foot or are collected in the clefts of the frog or between the bars and the frog. If the hoofs are excessively dry or brittle, they should be softened with some good oil or hoof ointment, and if they are ragged or tend to split, they should be rasped on the edges and trimmed until smooth.

It is advisable to clip horses when the weather warms up in the spring and heavy work begins. When clipped, they work much better, and they do not become chilled after work from having thoroughly soaked the heavy coat of winter hair with perspiration. Horses that are clipped as soon as heavy spring work begins should be blanketed at night.

STOCKMEN ARE BENEFITED BY KILLING WILD ANIMALS

During 1918 hunters of the United States Department of Agriculture and New Mexico killed 83 gray wolves, 34 mountain lions, 15 stock-destroying bears, 1,860 coyotes, and 359 bobcats in that State. These animals were killed at a total expense of $24,860, and the saving effected by their destruction, on the basis commonly accepted by stockmen, amounts to $215,950 annually. Hunting during the spring period destroys many young, and thus prevents increase. Many coyotes not accounted for in the figures given were destroyed by poison. The killing of these animals marks a long stride in extermination of gray wolves and other predatory animals, and the saving is cumulative for years to come.

Some of the mountains in the Southwest still harbor stock-killing bears—animals capable within a short time of robbing the stockman of his profits. Depredations by mountain lions—killers of sheep, cattle, and horses, and the worst enemy of deer—are still frequent. Coyotes are plentiful, and although they have been killed in large numbers, they still levy a heavy toll. Large sums are annually paid out in bounties on their account, yet year by year they are in many sections an increasing menace to the sheep industry. The high value of their furs during the past several years has encouraged hunters, but the breeding stock left after each fur season is more than sufficient to keep up their numbers. The big gray wolf has been reduced in New Mexico from 400 to less than 25, chiefly through intensive trapping of these animals the last three years by the organized Federal and State forces.

No relaxation in the work of destroying predatory animals is justifiable until these prying outlaws are exterminated, says the Biological Survey of the United States Department of Agriculture. Organization, up-to-date methods, uninterrupted effort, and high-class personnel are required to exterminate them within a few years. Organized operations must be backed by sufficient hunter forces to meet the situation generally in New Mexico and other parts of the Southwest, and to supervise cooperative work. Intensive work for a few years is manifestly more economical than partial efforts over a longer period.

If every home—there are 20,000,000 of them—should waste on the average one-half cup of milk daily, it would mean a waste of 2,500,000 quarts daily—912,500,000 quarts a year—the total product of more than 400,000 cows.

Try to make the dishes served of such size that there will be enough to satisfy the appetite of the family and no unnecessary table or plate waste. Don't be ashamed to plan closely. Thrift in food means providing enough food, neither too little nor too much.

Kitchen walls should be painted so that they may be wiped with a damp cloth, making cleanliness possible without great demand on strength and without the disarrangement caused by whitewashing or calcimining.

Two Serious Wheat Diseases Discovered in Illinois; Watch for Them Elsewhere

Two serious diseases of wheat hitherto unknown in this country recently have been discovered in Madison County, Ill., according to a statement by the United States Department of Agriculture. The first is a disease apparently identical with the "take-all" or "white-heads" known in many foreign countries. Take-all has caused serious losses in the wheat fields of Australia and has been reported as a pest of wheat, oats, barley, rye, rice, and certain wild grasses in Europe. The second disease is flag smut of wheat (*Urocystis tritici*), which also is a serious disease of wheat in Australia, and is known in India and Japan. Neither pest, however, has ever been reported to cause losses comparable to those resulting from the great epidemics of black stem rust in this country.

Damage Not to Be Great

Although these diseases may cause heavy losses to individual farmers, the total area likely to be affected before eradication or control measures are established probably will not be large, the department says. The losses in the total area affected this year will have no appreciable effect upon the total production of this year's wheat crop.

The presence of these diseases was discovered through a report from the county agent of Madison County, Ill., stating that wheat was being seriously injured by some disease. An investigation was made promptly by representatives of the Illinois Agricultural Experiment Station and the United States Department of Agriculture. The damage in the fields attacked was found to vary from a fraction of 1 per cent to as much as 90 per cent. In some fields the damage was so great that the farmers were plowing up the wheat and preparing to plant corn.

Specimens of the diseased wheat plants have been examined and found affected with the disease, showing all the symptoms of take-all in its early stages, as described in Australia. On the second visit to Madison County the department representative found the flag smut of wheat in the same fields injured by take-all. Finding these two Australian diseases in the same fields strongly indicates that they have been introduced on wheat shipped into this country from Australia. These diseases are carried on seed grain. A thorough investigation is being made by the Office of Cereal Investigations of the department to determine the source of all seed wheat used on the infested farms. A Nation-wide survey is now in progress to find if either or both of these two diseases have been introduced anywhere else in the United States.

Conditions Favor Disease

Their serious effects under Australian conditions are now well known. There is every reason to believe that they will find conditions in this country favorable to their spread. All growers of wheat and other small grains should be interested in helping their State experiment stations and the United States Department of Agriculture to find these diseases if they have been introduced and to keep them from spreading.

There should be little difficulty in recognizing flag smut, as it differs radically from the other grain smuts. Unlike the others, it attacks the upper leaves, particularly the top one, which is commonly called the flag leaf. The name of the disease comes from this characteristic. The flag leaf always shows long smut-spore stripes and frequently is contorted or twisted into a spiral. Occasionally flag smut attacks the stems, as well as the upper leaves. In this respect it resembles the stem smut of rye, but differs from it in that all of the culms instead of one out of several are attacked. Affected plants do not produce heads.

Distinguishing Take-All

The layman may have some difficulty in distinguishing the take-all disease from any other condition that causes the plants to turn yellow in patches over the field. Take-all appears in round or irregular patches, within which all of the plants are destroyed. That habit gave rise to the name of take-all. In the infected patches the plants are first yellow, later becoming brown and dead. Diseased plants are but weakly rooted to the ground and the roots and foot of the stems become rotten. From this comes another name, foot-rot, by which the disease is sometimes known. Affected plants may survive the early or seedling attack and produce heads, but they never fill out and are a dead white in color. This gives rise to a third name of the disease, white-head.

The Department of Agriculture has been for some time apprehensive that these two diseases would be introduced into the United States. Several weeks ago a hearing was held with a view to prohibiting the importation of seed wheat from Australia, Japan, India, and practically the whole of Europe. Quarantine regulations were being prepared some time before the discovery of the disease in Illinois.

KILL CLOVER-FLOWER MIDGE FOR MORE RED-CLOVER SEED

Red-clover seed is scarce and high in price. The clover-flower midge is partly responsible for this condition. It eats the immature seed vessels of clover and prevents the seed from forming. Most of this injury can usually be prevented by pasturing lightly or cutting the clover at the proper time to kill the maggots of the first generation, according to United States Department of Agriculture specialists.

The clover-flower midge is a small mosquito-like insect, which lays its eggs in the young clover heads. The maggots upon hatching burrows into the immature flower and kills the seed-producing vessels. It affects red clover principally and is responsible at times for very heavy losses to the clover-seed crop in this country.

The clover-flower midge passes the winter as a larva, or maggot, generally in a silken case or cocoon on or slightly below the surface of the ground. The cocoon is very small, oval, and measures approximately one-tenth of an inch in length and one-twentieth of an inch in diameter. It is constructed of a white papery substance of a leathery consistency and is difficult to recognize in its natural location.

With the first warm days of early spring the larvæ in the cocoons begin to change to the pupa or resting stage. The pupa period during April and May lasts from two to three weeks, depending upon the season. The adult flies are always abroad by the first week in May, by which time the young clover heads have begun to appear. The adults of the clover-flower midge are present in greatest numbers from May 18 to June 1, by which time most of them have disappeared. By far the greater portion of their eggs are laid upon the young clover during that period, and each female fly may lay as many as 100 eggs. If the clover is cut shortly after the egg-laying period ceases, all the maggots are killed and few or no flies are able to survive to infest the later crop, which matures the clover seed.

How to Kill Clover-Flower Midge

The practice of pasturing red clover previous to starting a seed crop has proved to be an effective means of midge control in more northern latitudes. In favorable seasons clover often makes sufficient growth the first year to enable

the farmer to begin pasturing in the early fall. Fall pasturing is valuable in that it keeps down the volunteer heads in which the midge would otherwise secure a foothold in the field the first season. In any event, the clover always makes sufficient growth to permit pasturing the following spring. Spring pasturing exterminates the midge, either directly by the destruction of the clover heads containing the eggs and partially grown larvæ, or indirectly by preventing the heads from forming during the time the adults of the spring generation are laying their eggs.

Live stock may be removed from the field the latter part of May or left until early June, depending upon the season and latitude. In case the pasturing has not been close enough to get all of the heads, a mower should be run over the field shortly after the stock is removed in order to cut what remains. This practice not only results in the destruction of the immature midge larvæ which may happen to be present in these heads, but also keeps down the weeds that otherwise might be present in the seed crop.

When to Cut Early

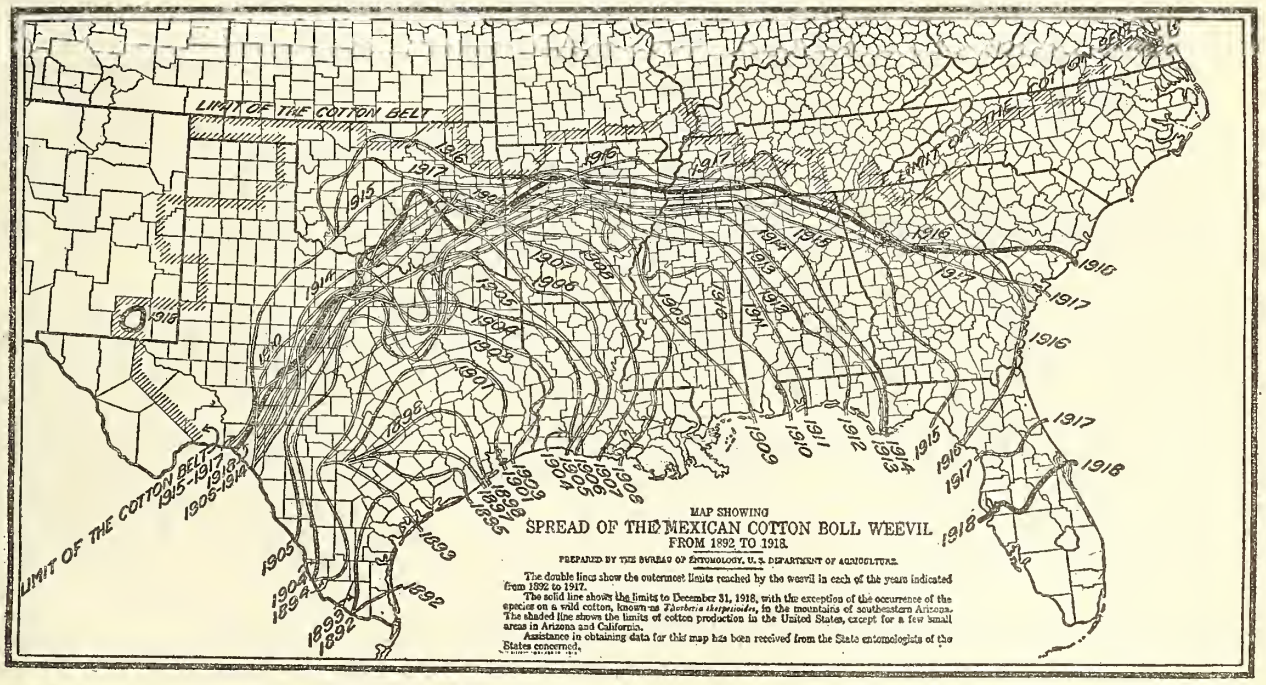
As the majority of farmers raising red clover desire to secure both hay and seed crops, the practice of early cutting of the hay crop has to be resorted to in midge-infested districts. Early cutting can be practiced successfully by some of the clover-seed growers, but on account of the seasonal variations and general climatic conditions existing in some latitudes it is more difficult to lay down a general rule, stating approximately upon what date to cut each year, than it would be if such conditions were more nearly uniform. To practice early cutting effectively the farmer must not only keep himself informed as to the development of the clover itself, but also as to the development of the midge larvæ within the heads. The changing of tint of the larvæ in the majority of the infested heads in the field from a creamy white to a salmon pink indicates that they are rapidly approaching maturity and that cutting should not be delayed long if the majority of the larvæ are to be killed by this means.

If clover is cut during the first week in June, the cutting will destroy the maggots of the spring generation and will assure an uninfested seed crop, except for such slight infestation as comes from the few scattered individuals that possibly may invade the field from the roadsides or that may be blown over by the wind from a neighboring field. This recommendation applies only to clover where it is grown as a seed crop. The clover-flower midge does not injure appreciably the clover as a hay crop.

Farmers' Bulletin No. 971 gives further information regarding the best methods of combating the clover-flower midge.

A hood suspended over the kitchen range and connected to the flue in the chimney will gather all the steam and odors and carry them away.

BOLL WEEVIL LOSES GROUND, BUT REGAINS MUCH OF IT



Due to the hard winter of 1917–18, the boll weevil lost ground in his conquest of the cotton belt last year. This is exceptional in the history of the weevil, in that it is the second year since the establishment of this insect in the United States that there has been a net reduction in territory infested by this pest, according to a map prepared by the Bureau of Entomology of the United States Department of Agriculture.

This does not mean that the movement of the boll weevil has been permanently stopped. In fact, the net loss of territory for the year was but a fraction of the loss at the beginning of 1918. Much of the lost territory was regained by the weevil later in the year.

The losses in territory occurred in Texas, Oklahoma, Tennessee, and Alabama. The weevil gained territory in Florida, South Carolina, Georgia, and New Mexico. This is the first report of the boll weevil on cotton in New Mexico, where it was found in the Pecos Valley.

The weevil has reached the southernmost limits of cotton production in Florida. It is steadily gaining new territory in South Carolina. Almost the entire sea-island cotton belt is now infested.

Altogether the weevil invaded only 16,100 square miles of new territory during 1918. It lost 46,600 square miles of formerly infested territory, making a net loss of 30,500 square miles. About 150,000 square miles of cotton territory still remain uninfested.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

STATE OFFICIALS TO ADVISE IN FEDERAL AID ROAD WORK

To bring about the most effective cooperation between the Federal and State Governments in the big program of highway construction now under way, A. R. Hirst, president of the American Association of State Highway Officials, has named, at the request of the Secretary of Agriculture, a committee to act with the Department of Agriculture's Bureau of Public Roads in carrying into effect the Federal aid road act and its amendments.

Following are the State representatives selected by Mr. Hirst:

George P. Coleman, State highway commissioner of Virginia; S. E. Bradt, State superintendent of highways of Illinois; Charles J. Bennett, State highway commissioner of Connecticut; W. S. Keller, State highway engineer of Alabama; and Ira R. Browning, State road engineer of Utah.

States Provide Money

Stimulated by recent liberal amendments and added appropriations to the original Federal aid road act, road-building plans in the States have received tremendous impetus. Many of the States have provided, by large bond issues and otherwise, amounts much larger than will be required to match the Federal appropriations.

Up to May of this year 1,057 project statements for Federal aid roads had been approved by the Secretary of Agriculture. They involve the improvement of 10,580 miles of roads at an estimated cost of $92,933,121.81, of which the Federal aid requested was $36,576,857.48. The amount of Federal funds available on March 1 for road building was more than $72,900,000, which, under the law, must be matched by an equal amount from the States, making a total of $145,800,000, which includes approximately $9,800,000 from Federal and State sources for roads in the national forests. Funds that will become available on July 1, with equal contributions from the States, will provide an additional $198,000,000 for Federal aid road work, making an aggregate sum of $343,800,000 available for the calendar year. It is expected, however, that the States will defer taking up part of the available funds until 1920.

Reorganization After War

War conditions, which almost immediately followed the passage of the first Federal aid act in July, 1916, brought scarcity of labor, materials, and transportation, and restricted road-building projects to those absolutely essential to winning the war. Thus the road program was held back for more than a year at a time when demands for improved roads increased more rapidly than in any previous period. State and Federal forces alike are working to get highway construction under way as rapidly as contracts can be let and as soon as road-building forces, somewhat disorganized during the war period, can again be placed on an efficient working basis.

DAIRY FRAUDS PUNISHED UNDER FOOD AND DRUGS ACT

Notices of judgment in 100 court actions under the Federal food and drugs act, based on the adulteration or misbranding of foods and patent medicines, have been published in recent issues of the service and regulatory announcements of the Bureau of Chemistry, United States Department of Agriculture. All the cases were terminated favorably to the Government. Fines ranging from $10 to $200 were imposed. In some instances the seized goods were ordered destroyed.

One-third of the 100 actions covered by the notices of judgment were based upon the adulteration of dairy products, principally because of the addition of water to milk. In some instances the charge was based upon the removal of butter fat from the milk. In one instance it was charged that oleomargarine had been mixed with butter. Milk containing dirt was the basis of another action.

Feeds Adulterated and Misbranded

Fifteen cases involved the adulteration or misbranding of stock feed. These included cottonseed meals which were misbranded because of statements on the labels containing a higher percentage of protein and fat, the chief food elements, and a lower percentage of crude fiber, which has little food value, than was present in the meals. Weed seeds or screenings were found to have been substituted in part for a flaxseed product. A shipment of corn meal was decomposed and unfit for stock food. Other actions were based upon tankage containing glass and upon decomposed hay. Short weight was charged in a number of cases involving stock feed.

Oysters adulterated with water were the basis of eight court cases. When fresh water is added to oysters, or when oysters are allowed to soak for some time in fresh water, they absorb from 10 to 30 per cent more water than they should normally contain. Both the bulk and the weight of oysters are increased by the added water.

The charge of being partly decomposed or rotten was made in actions based upon evaporated apples, corn, peas, prunes, tomato pulp, and walnuts. Animal products which were partly decomposed also formed the basis for a number of cases involving bacon, fish, sardines, sausage, and steak.

Fines for Deceptive "Lard"

Lard made partly of cottonseed oil and beef stearin resulted in fines being imposed on three firms. A fine of $100 was imposed because a shipment of macaroni was represented on the labels to be of foreign origin, when, in fact, it was manufactured in the United States. Olive oil mixed with cottonseed oil was the basis of an action. Shipments of frozen oranges, frozen grapefruit, and frozen tangerines were seized. Water, the cheapest of all adulterants, was found in vinegar. A shipment of rotten eggs was seized. A so-called egg substitute was found to be mainly a cereal product. False and fraudulent claims as to the curative powers of patent medicines also formed the basis of prosecutions.

Service and Regulatory Announcements, Chemistry Supplements numbered 55 and 56, containing information regarding each of the 100 cases as well as the judgments of the courts, may be obtained upon application to the Bureau of Chemistry, United States Department of Agriculture, Washington, D. C.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

How Cooperation Transformed Community Told By Farmers

How cooperation transformed a community is told by the Camp Creek Progressive Farmers' Club of Wayne County, W. Va. About 30 of the 40 farmers in the neighborhood are members of the agricultural club which was organized to better conditions.

"Where there was formerly strife and dissension in our neighborhood there is now harmony," says the club. "Before the club was organized 20 bushels of corn to the acre was the average yield, but now 50 to 75 bushels are grown. Where we formerly raised 6 bushels of wheat to the acre we now raise 16; where we formerly used bushels of fertilizer we now use tons; and where we formerly owned a low grade of live stock we now own a much better grade."

These are some of the results of cooperation where the whole community worked together.

BETTER POULTRY MANAGEMENT PAYS

Greater cash returns for their products have persuaded poultry raisers in Holmes County, Fla., that better management of their flocks is well worth all it costs. The movement of eggs for the first three months of the year was fully 20 per cent greater than last year, reports the county agent. During this period 1,356 crates of 30 dozen eggs each were shipped out of the county, for which the farmers received $13,831.20. These figures, the county agent reports, show what early hatching, better care, and selection will do for the average farm flock. As a remany farmers in the county are getting more and better breeding stock this year.

SHOWS VALUE OF COLD STORAGE

As a part of the plan to show the South how to feed itself, the county agent of Washington County, Fla., got one farmer to build a home cold-storage house of modern type. Immediately upon its completion three hogs were butchered and placed in storage. A number of farmers are awaiting the results of this demonstration, contemplating the construction of a similar storage house if the one now in use is a success.

STORAGE HOUSES TO MAKE SWEET POTATOES A STAPLE

That sweet potatoes will soon become as staple a crop as Irish potatoes is indicated by the fact that a number of modern storage houses are being built in parts of the Southern States where sweet potatoes are grown extensively. When placed in storage houses of the proper type sweet potatoes can be kept as easily and with no greater loss than Irish potatoes in storage.

The county agent in Suwannee County, Fla., reports that two sweet-potato storage houses, one of 15,000 bushels' capacity and the other of 10,000 bushels, will be built by business firms in that community. One of these firms has already contracted for storage of 10,000 bushels of potatoes to be delivered this fall. Each of the firms will allow the farmers to store potatoes in the houses if prices on the market are not satisfactory at digging time. One outcome of the plan to build the storage houses in Suwannee County is the organization of two sweet-potato clubs among boys and girls.

COUNTY AGENT'S WORK VARIED

If variety is the spice of life the county agent of Hardin County, Iowa, should be satisfied with his work. During a recent month, according to his report, he discussed with farmers income tax, hired help, grass-seed purity tests, pure-bred hogs, farm-bureau membership, feeding baby beeves, farm record books, soy beans, improving the laying qualities of poultry, farm bureau exchange and marketing lists, farm bureau board meetings, State farm bureau federation, advantage of raising pure-bred live stock, live-stock shipping association, control of obnoxious weeds, affidavits for discharge of soldiers, black-stem rust on barberry, curing of pork, live-stock breeders' association, State fair boys' camp, and publishing a farm bureau record, in addition to a few other topics.

SAVE BY BUYING COOPERATIVELY

In five parishes in northern Louisiana, where the drought of last summer endangered the corn crop more than in a score of years, 681 farmers have purchased through the parish agents 99½ carloads of feedstuffs. The total cost was $92,360, a saving of $10,063 being made by cooperative buying.

Rhode Island Farm Bureaus Make Big Gains in Members

The recent membership campaign in the farm bureaus of Rhode Island resulted in an increase of 200 per cent in the membership in the State. Organization of local communities and development of a definite program of work will be carried out by all the county agents. It is believed such project work will be most fruitful of permanent results, and a very large per cent of the time of the county agents will be devoted to this line of work rather than to the more or less intermittent work which is likely to take up the agents' time unless protected by a well-defined plan.

The general assembly of the State is being asked by the farm bureaus to increase the State appropriation for the bureaus by $3,500. This will be divided so as to give the southern Rhode Island and the Newport County districts $1,000 each and Providence County $1,500.

AGENTS TREAT THOUSANDS OF TREES

A total of 391 orchards, containing 24,096 trees, were sprayed and pruned by Louisiana farm-demonstration agents last year. The agents have been responsible for an orchard boom in many sections, and were instrumental in having 446 additional orchards planted. Although reports are not complete for the orchard work done by the agents in the spring of 1919, it is expected, as shown by their reports, that the totals will far exceed those of last year.

TRACTORS AID RICE GROWERS

Six years ago there were only 25 or 30 farm tractors owned by farmers in Jefferson Davis Parish, La., a section famous for its production of rice. There are now about 200. These machines are used for breaking the land, cultivating, harvesting, pumping water to rice fields, hauling rice to mills, hauling feed and fertilizers to farms, and in many other ways. About one-half of the farming land in the parish is broken with tractors. The majority of these farmers, reports the agricultural agent, consider farm tractors indispensable. The agent finds that the rice growers are responsive to suggestions on the improvement of their operations by using improved implements and labor-saving machinery.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping.

How a Club Boy Became Champion of Pig Raisers in Minnesota

A Minnesota boy entered the local pig club last year, and at the end of the season found he was the State champion pig club member and had won a free trip to the State fair.

"At the beginning of the contest," the boy reported to the club leader, "my pig weighed 60 pounds and was 59 days old. After I had taken her home she would not eat until the second day. Then she began to pick up and look more cheerful at mealtime. At the end of the second week I turned her out to roam at will and built a shed for her in a vacant hog lot, where she went every night after supper. She began to get more knowing every day and would come to the house at mealtime and squeal until she was fed, which wasn't long.

"I fed her five or six times a day, using shorts, skim milk, oats, barley, and occasionally culled potatoes. I curried her whenever she got muddy, or about every other day, and made it a point to oil her with cream separator oil in order to keep her skin and hair from becoming harsh."

CAMP FOR CLUB MEMBERS TEACHES GOOD FARMING

A training camp to train boys and girls for profitable farming was held in Hillsborough County, Fla., during the first week in April. It was attended by 70 members of the boys' and girls' club. Instructive lectures on club work were given each forenoon and practical demonstrations, lectures, and excursions to neighboring farms were given each afternoon. At evening the boys and girls enjoyed songs, games, and stories.

During the encampment the pig club boys built a self-feeder for swine, following the plan outlined in Farmers' Bulletin 906 of the United States Department of Agriculture. The lumber, nails, and hinges cost $1.78, and everyone who took part in building the feeder now know how to construct one for his club work. When the feeder was completed the question arose as to what the club would do with it. The county agent was requested to give a competitive examination on pig feeding, the boy making the highest grade to receive the self-feeder. It was won by a boy living near the camp, who agreed to keep all data on feeding his pigs with it so that the information could be used for other club members.

BOYS GROW FEED FOR PIGS BOUGHT BY BANKERS' HELP

Club work in Columbia County, Fla., has started off this spring in a way that gives every promise of the most successful year experienced in that community. Ninety boys have enrolled in the corn, peanut, and pig clubs, and have agreed to grow the crops which are used in feeding their club pigs. Forty-four of the boys have already ordered pure-bred Poland China gilts through the American Poland China Record Association. Gilts six or seven months old will be used.

R. R. Lake, of Watertown, is financing the boys, and has accepted their notes for 18 months, with no interest the first 12 months. None of the boys expect to pay interest, for they plan to earn enough money to pay all the notes before 12 months by selling pigs from the first litter. Eight progressive farmers in the county have ordered pure-bred Poland China boars and will allow the boys to breed their sows when old enough.

SUCCESSFUL IN RAISING BEANS

Wilbur Barrett, of Whatcom County, Wash., made $65 profit from his one-tenth acre of beans. Wilbur is a member of the boys' and girls' club of his county, organized by the United States Department of Agriculture and the State Agricultural College. His seed—6 pounds of Kentucky Wonder pole beans and 3 pounds of bush beans—was planted on land which had never been cropped. It required 1,420 poles to stake the plants when the vines began to run. He writes in his report that "the most fun was picking the long fat pods. At one picking I would get as high as 14 big sacks. I spent $16 of the $65 I made for clothes, $2 for an air gun, $7 for some rabbits, and gave the rest to my father to help toward buying an auto to go to school in."

Elgie Coacher, of Davison County, S. Dak., raised 52½ bushels of potatoes on one-eighth acre last year. His record gave him the State championship in the boys' and girls' potato-raising clubs.

Gardening Rather Than Fishing Gives Nebraska Good Record

When it came to deciding between fishing and gardening, many boys and girls in Nebraska last year gave up the time-honored pastime and went to raising vegetables. They found that by doing so they were rendering their country a greater service, that gardening was not "one long row to hoe," but that it could be made enjoyable and far more profitable than less useful pastimes.

The garden clubs organized in the State last year had a total membership of 9,749 boys and girls. In addition to the members of organized clubs it is estimated that 15,000 other boys and girls raised gardens, which had a total value of $37,000. The products from the club gardens were valued at $46,702.54, and the net profits made by the club members, after making full allowance for the labor of the boys and girls for seed and all other expenses, was $30,598.63.

GROWS GARDEN TO BUY CALF; THEN WINS A STATE PRIZE

Alfred Olson, of Klickitat County, Wash., is a member of one of the calf clubs organized by the United States Department of Agriculture and the State College of Washington. With his pure-bred Jersey heifer calf, Arca's Babe, he won the State championship prize last year. In 1917 Alfred became interested in the calf-club work, but a pure-bred calf costs money, and he did not have funds to buy that requisite for membership. To enroll in a garden club as the first step toward entering the calf club may seem unusual, but that was what the Klickitat County boy did, and he reached the desired goal. The weeds in his club garden kept him busy all summer, but he gave it such faithful care that his vegetables were prize winners. He exhibited a collection of them at the State fair and took $60 worth of prizes.

Meanwhile he had been writing to Jersey breeders for prices and descriptions of calves. He decided on Jerseys because that was the breed his father had. With $40 of his garden-prize money he bought a month-old Jersey heifer calf in October. He kept her in the barn all winter, but in the spring she was turned

out on the range. When brought in in September to be made ready for exhibition purposes she was larger at 11 months than his father's grade calves of 15 months. At the State fair Alfred's Jersey was awarded the State championship prize in the boys' and girls' club class and was valued at $150.

PLANNING COOPERATIVE SHIPMENT

The pig club boys of Madison County, Fla., are planning to market their pigs next fall in a cooperative carload shipment. These boys are now busily engaged in a feeding contest and are working for one of a number of prizes offered for the most successful feeders. Peanut meal and corn, with rape and rye pastures, make up the present rations of the club pigs. The local county agent has already informed a number of livestock commission companies of the plan of marketing the club pigs, and states that the buyer will have to bid above the market price to get them.

100 BOYS JOIN CALF CLUB

Florida is fast winning fame for other things than early vegetables, oranges, and grapefruit. Stock raising is moving ahead in the agriculture of the State and the boys' and girls' clubs are playing an important part in developing livestock interests. About 100 boys have been enrolled in calf clubs in the lower eastern coast counties. The county agents in that section hope that the dairy calf clubs will do for the dairy interest what pig clubs have already done for the swine industry.

All club boys will purchase pure-bred animals. Dairymen are helping them, and bankers have agreed to lend money to all club boys recommended by the county agents. Each boy's father will indorse his note, one-fourth of which will be payable with interest at the end of 12 months, one-fourth with interest at the end of 24 months, and one-half with interest at the end of 30 months. This will give the club members an opportunity to buy a calf 5 or 6 months old, and earn money by selling dairy products for at least the last payment. Some of the boys who have favorable advantages will be allowed to purchase pure-bred heifers about 2 years old.

Making a garden is monotonous only when you make it that way. This is the testimony of Ralph Baerman, of Rushford, State champion garden club member of Minnesota. He found interest every day.

How the Club Boys and Club Girls Help Themselves Along by Singing of Work

Of course, the poets and writers of light opera are all wrong when they try to make out that farming is a business wherein the jovial harvesters join hands with the merry villagers and dance around a Maypole, singing roundelays. They are taking too literally Shakespeare's observation that "All the world's a stage." There is something about routing out the cows in the morning before sunup, and something about piloting a plow through heavy soil and salty sweat, that does not conduce to song.

But there are farm songs, and farming songs. The country heard a lot of them last fall when volunteer helpers went out from the cities to help meet the situation created by heavy yields and few harvesters. Most of that singing was done on the way to and from the fields, but it was pretty good singing, anyway. And then there are songs heard mostly at farm bureau meetings and the like. All that is necessary to prove that farmers can sing when they want to is to hear a dozen or a hundred of them join in this, using the tune of "Old Black Joe":

Gone are the days when my farm returned no pay,
Gone are the folks who used to call me "Jay,"
Gone are my debts for the better crops I grow,
I hear my neighbors' voices calling, "Farm Bureau."

Then listen to this deep-throated chorus:

I'm coming, I'm coming, for my bank is full of dough,
I hear my neighbors' voices calling, "Farm Bureau."

Youth, however, is the springtime of life, and springtime is the season when the human family, and the birds and the locusts and the organ grinders, seem most disposed to make a more or less harmonious noise. Therefore, it is among the farm youth in the springtime of life that you will find the most singing of and at their daily tasks. The boys' and girls' clubs, organized under the direction of the United States Department of Agriculture and the State agricultural colleges, have more songs than you can shake a stick at. And how they can sing 'em!

Here Come the Club Members

Imagine that you are sitting in the shade of an old apple tree in the green fields of Virginia or Maryland, my Maryland, or some place like that. Down the road comes a bunch of garden club boys and girls, with spades and rakes on their shoulders and the light of achievement in their eyes. They are singing, and the strains are the same as in that "Over There" song that went from Broadway to Chateau-Thierry and back again. Listen:

Johnnie, get your hoe, get your hoe, get your hoe;
Mary, dig your row, dig your row, dig your row.
Down to business, girls and boys,
Learn to know the gardener's joys.
Uncle Sam's in need—pull the weed, plant a seed,
While the sunbeams lurk, do not shirk, get to work.
All the lads must spade the ground;
All the girls must hustle 'round!

All together in the chorus:

Over there, over there;
Send a word, send a word, over there,
That the lads are hoeing, the girls are sowing,
The crops are growing everywhere.
Each a garden must prepare;
Do your bit, so that all of us can share
With the boys, with the boys
Who will not come back 'till it's over, over there!

Their fresh young voices—ah, if all vegetables were as fresh—die away in the distance. But from over the hill another group of boys approaches. You know they are pig club boys, for to the tune of "Row, Row, Row Your Boat" they are singing—

Grow, grow, grow a pig
Fatter every day.
Merrily, merrily, cheerily, cheerily;
Half our work is play.

And here come some rosy-cheeked girls, all dressed up in white aprons and snowy caps, and everything—they catch what the boys are singing, and they reply:

Can, can, all you can;
Can and put it away.
Merrily, merrily, cheerily, cheerily;
Half our work is play.

Close behind them are some sewing-club girls, and now they are singing:

Sew, sew, sew a seam;
Sew the time away.
Merrily, merrily, cheerily, cheerily;
Half our work is play.

And over in that field, can those children be the Little Bo-Peeps and Little Boy Blues of to-day?

They're Real Children

No; nothing Mother Goose-like about them; nothing but the sheep—and their song:

Little Bo-Peep,
Come raise some sheep;
And you do it, too,
Little Boy Blue.

So it goes, with you in the shade of the old apple tree, listening to the club boys and the club girls as they tell in song the merits of their respective avocations. And then, just like in a show, they all troop back again, and, like the grand

chorus in an opera, to a tune you recognize, this rises:

There were club boys on the hillside,
  There were club boys on the plain,
And the country found them ready
  At the call for meat and grain.
Let none forget their service
  As the club boys pass along,
For, although the war is over,
  They are singing still this song.

The chorus comes like a cataract:

Keep the home cow milking,
And the club corn silking;
Tell the idle boys and girls
  To work for Home.
There's a club pig growing,
While the grain we're sowing—
Boost the club work night and day
  Till we "Live at Home."

BOYS RAISE CORN FOR SEED

In Caddo Parish, La., the agricultural agent has organized a corn club with an enrollment of 30 boys. This club has gone a step further than most corn clubs. The members have agreed to plant the same kind of corn and will make a special effort to grow good seed. Next fall when their corn is exhibited at the local fair the boys will hold a cooperative seed-corn sale.

WILL TRY OUT WIRELESS TELEPHONE

In many sections of the national forests it has been found impossible without great expense to maintain telephone wires or cables because of the havoc wrought by timber falling across the wires and by heavy snowslides. Therefore wireless telephones are soon to be given a trial in the forests, and the Signal Corps of the Army has lent four combination sets of transmitting and receiving apparatus to the Forest Service of the United States Department of Agriculture.

Equipment is to be installed on Mount Hood, at an elevation of about 13,000 feet, and another set is to be at the nearest forest ranger station, about 12 miles away. Two other sets are to be placed in the Clearwater Forest region of Idaho, which is heavy wilderness country.

Wireless telephones have never been tried in mountainous country, and interest centers in the results of the experiments, particularly in the effect on messages of high ridges between telephone stations. The Mt. Hood experiment will show the practicability of talking from a high point to a low point, and the Clearwater Forest experiment will demonstrate whether messages can be communicated from two points of about the same elevation but separated by mountains.

All the wireless stations will be established at lookout points, and will give warnings of fires developing in the forests, supplementing the regular facilities of the Forest Service.

Nobody Knows All About Nematodes, But the World Has Them in Countless Hordes

Nematodes—good, bad, and mysterious—inhabit soils in myriads, accomplish this or that benefit or detriment for mankind, and by the millions live and die, apparently unnoticed. Parasitic nematodes in countless hordes inhabit sheep-growing countries and cattle-raising sections, while such crops as wheat, sugar beets, and many others of world-wide importance are often infested with nematodes which wreak much damage. Hookworm, a scourge of the Tropics, known as "guinea worm," as well as trichinosis, are diseases of the human family directly due to nematodes. It is estimated that 80,000 odd nematode species infest the 40,000 or more species of vertebrates. At least 100 different species also infest the roots of citrus fruit trees throughout the world.

Nematodes are threadlike creatures varying in length from a few millimeters to from 20 to 24 inches. Some of the females possess the power of self-fertilization. Nematodes occur in both free-living and parasitic varieties, which are usually connected by transitional forms which live by their own efforts at one stage of their existence and are parasitic at another. Those that are parasitic in the larval stage are free when adult, and vice versa. Furthermore, the nematodes which are parasitic during their whole life consist of two kinds—those which undergo complete development in a single host and those which accomplish development in the bodies of two distinct hosts.

Numerous Everywhere

On arid plains, at the bottom of lakes and rivers, in the water of hot springs, as well as in the ice of the Antarctic, on practically every form of motive life, nematodes are found in enormous numbers. They are spread to the four corners of the compass. They infest trees even to their highest tops, their microscopic eggs and larvæ being spread by air currents, insects, birds, climbing animals, or by keeping pace with the growth of the tree the nematodes reach the high locations by their own efforts. These insects are the cause of swellings or galls on the aerial parts of plants, as well as on the roots. The numbers in which the nemas work is illustrated by the case of a single apple, which grew about 30 feet from the ground and contained 90,000 of the insects, some of which were equipped with biting mouth parts which allowed them to puncture and batter their way into the vegetable tissue.

The economic damage accomplished by nematodes annually is stupendous. In live-stock countries, such as the United States, Australia, and Argentina, where much wealth is in farm animals, the monetary loss due to nematodes is always considerable and sometimes very great. Millions of nematodes attack sheep in the countries where these animals are kept on an extensive scale. Such crops as wheat, sugar beets, coffee, and the like are frequently decimated or ruined by diseases caused by nematodes. The common gall worm has been found infesting the roots of several hundred species of plants, among them most of our cultivated crops, and causes an annual loss amounting to millions of dollars. There is another nematode that at times has completely checked the growing of sugar beets in certain regions. Every domestic species of animals and doubtless every wild species has a number of nematode parasites sapping its vitality.

About a year ago a new genus of nematodes was found attacking citrus roots in California. Within six months this parasite was located in such widely scattered regions as California, Florida, Spain, Malta, Palestine, and Australia, showing that it probably has long infested the citrus species and inadvertently has been carried in nursery stock to many different parts of the world from its original habitat, which probably was the original habitat of the cultivated citrus species themselves—southeastern Asia. To show how well distributed are nematodes, if those from a 10-acre field were arranged in single file they would form a procession long enough to reach around the world.

Nemas as Cannibals Do Good

Fortunately for mankind there exist cannibalistic species of nematodes which prey on others of their kind. Some species of beneficial nematodes guard and protect orchards by being parasitic on the injurious species, as well as other microbes and fungi. These predaceous animals inhabit the soil, fresh water, and the above-ground parts of certain plants. They officiate better than policemen in decreasing the numbers and activity of the crop-thieving parasites. A peculiarity is that they live in perpetual darkness.

Food is the fuel which furnishes the energy for all the bodily activities, as coal furnishes the heat to make the steam which drives the engine; but it does more than this—it also builds the body engine and keeps it in repair.

Potato Growers Urged to Be on Guard to Detect Appearance of Wart Disease

Every grower of Irish potatoes—whether he handles a private patch or a commercial acreage—is urged by the United States Department of Agriculture to watch carefully his potatoes at digging time for evidence of potato wart disease, a European malady which is one of the most destructive attacking potatoes.

The wart disease was introduced into 27 coal-mining districts of Pennsylvania in potatoes brought from Europe about 1911. At that period of shortage, several million bushels of spuds for food purposes were imported and distributed widely throughout the country so that many other sections possibly have been exposed to infection. In order to identify and quarantine all points of infection it is imperative that all growers, dealers, distributors, and county agents carefully inspect new crop potatoes and report all suspicious cases, in addition to sending samples as soon as possible to their State agricultural college, State experiment station, or to the United States Department of Agriculture, Washington, D. C.

Threatens Big Damage

If potato wart becomes generally distributed in the United States, it means not only millions of dollars of loss but also a complete change in the potato industry to prevent its total destruction. Potato wart almost completely destroys the spuds for food purposes. Once established in the soil, all that can be done is to work against its spread. The disease will remain alive in the ground for as long as eight years, and it is unsafe to plant potatoes in infested soil within that period. It is known that the potato wart disease had been establishing itself in the Pennsylvania localities for six years before it was discovered. The Department of Agriculture has now placed a quarantine prohibiting shipment of potatoes from sections of Europe where the disease has existed, and if the Pennsylvania sections are the only points of infection the disease is now under control.

What Disease Does

Potato wart is characterized by warty, spongy, cauliflower-like growths on the underground portions of the plant. Infections usually begin in the eyes and attain the size of a walnut or larger. Sometimes entire tubers are converted into a spongy, warty mass. Young warts are usually light brown in color, although after decay begins they turn black, which causes the disease to be sometimes called "black scab," or "black wart." Many of the warts rot in the ground before the crop is harvested, while others decompose when the potatoes are placed in storage. Some of the warts left on the field at digging time may remain alive under suitable conditions for months. The disease may continue to vegetate long after the potato crop has been harvested, due to the sending up of sprouts from the sound warts and the development of new warts from the tender portions of the young sprouts.

Every precaution should be exercised to prevent the spread of infection. The warts should be collected and destroyed by burning. Diseased tubers should not be fed to stock without first being boiled. Soil known to be infested should be planted to other crops.

Attempts to control the disease by treating infested soils with chemicals have failed. In European countries it has been ascertained that certain potato varieties resist this disease. No American varieties of potatoes have been tested for resistance to rot, but experiments of this nature are projected.

MACHINERY FOR ADMINISTERING THE FEDERAL HIGHWAY LAW

(*Continued from page 1.*)

"In July, 1916, the Bankhead Road Act was passed. It provided appropriations out of the Federal Treasury, to be matched by equal sums from the States, for the construction of roads, and provided further that no State should receive any of the money appropriated unless it had a highway department with adequate powers. The law placed the administration of the act in the hands of the Secretary of Agriculture, in cooperation with the 48 State highway departments. It was enacted only a short time before we entered the European war and its operation was necessarily greatly interfered with by the disturbed conditions. There were also certain features of the law that made its smooth administration difficult. After the cessation of hostilities, with the approval of the President, I requested Congress to make a large additional appropriation to aid the States in highway construction and also to make certain amendments to the law, the necessity for which experience had demonstrated. Congress, through the Bankhead amendment to the Post Office appropriation bill, provided an additional appropriation of $209,000,000, and substantially made the amendments suggested.

Difficulties Removed By Amendments

"Under existing legislation there is no special obstacle, so far as I can see, to the construction, in the different States of the Union, of those roads which serve the greatest economic needs. In the first place, the definition of the kind of roads that can be constructed has been greatly broadened and, in the second place, the limitation on the Federal contribution for any one road has been increased from $10,000 to $20,000 a mile. Following this legislation, the regulations governing the administration of the act and the standards for plans, specifications, and estimates have been modified.

Existing Machinery

One of the most successful former State highway engineers in the country has been placed in immediate charge of the Federal aid road work. He has at his disposal a considerable staff of local and district engineer aids and no pains will be spared to provide any further Federal assistance that may be needed. The machinery provided by the Bankhead amendment includes not only the Federal Bureau of Public Roads, one of the largest and most effective organizations of its kind in the world, but also the 48 State highway departments, the two agencies working in close cooperation. It is also a part of the plan to have an advisory committee, composed of representatives of the State highway departments, selected by the American Association of State Highway Officials with due regard to geographic considerations, to work in intimate touch with the Federal bureau, meeting with its officers at stated periods and at such other times as may be necessary. This machinery, in effect, is an expert national commission intimately in touch through its various parts with all sections of the Union, having no other purpose than that of serving the public interest. It is difficult to see what need there can be for additional machinery.

Local Responsibility

"Very properly the Bankhead Act places on the highway authorities of the several States responsibility, in large measure, for selecting the roads to be constructed. Obviously the local authorities are in a better position to judge what roads would serve the largest economic needs than any group of men sitting in Washington would be. It is the duty of the Federal bureau, with its district engineers, to see that the provisions of the law are complied with. It is giving, and will continue to give, all possible assistance to

the State authorities in all their technical problems, as well as in the planning of State systems and in the classification of roads. It has been the policy of the department from the outset, in order to prevent haphazard action, to have the State highway authorities prepare and present tentative State systems of roads. It was apparent that a rigid system, not subject to modifications as conditions might require, would be inadvisable. Each State authority has worked out a system and, in general, it is being followed in the development of projects and the construction of roads. In a number of instances systems in general terms have been adopted by State legislatures. Of course, in formulating these systems, the engineers gave due regard to interstate connections—that is, to roads connecting the system of one State with that of another—and it is difficult to see why, as progress is made, the construction of through roads will not follow as a matter of course.

Change Would Involve Serious Complications

"It seems scarcely likely, in view of the fact that nearly $300,000,000 are now available out of the Federal Treasury, that the Congress, in the light of the financial situation, will make additional large appropriations; and it would be impossible without creating many complications to divert the existing appropriations from the purposes and plans already under way under the cooperative arrangements with the States. A considerable part of the available appropriations has already been formally tied up under agreements with State departments and contracts for large sums have been let. Additional large amounts are being pledged monthly. Every State has accepted the Federal act and many of them have by law directed its agencies to cooperate with the Secretary of Agriculture. A number of the States have large sums available for cooperation, in many instances much in excess of what is necessary to meet the requirements of the Federal act, and other States are preparing greatly to increase their appropriations. These State laws and arangements can not easily be changed and perhaps would not be. After the original act was passed, more than a year elapsed before many of the States were able to secure legislative action which would enable them to comply with the Federal law and to begin the construction of roads. With the passage of the amendment carrying a large additional appropriation, there arose a necessity for further legislative action in some of the States. It seems to me that, instead of asking for more or different legislation, we should now proceed actively and vigorously with the construction of roads under existing arrangements.

No Gain Apparent from Change

"I am convinced that nothing material would be gained by the proposed change. Much would be lost. As has been pointed out, many complications would be introduced. The creation of a commission would entail unnecessary additional administrative expenditures, and the commission could not do anything that can not now be done more effectively by the existing cooperative machinery. There would also be a radical change of policy. I do not think that the people of the States will be willing to substitute for the present policy of developing roads on the principle of serving the largest economic purposes that policy advocated by those whose interest is in two main or trunk-line automobile roads in each State, nor do I think that they would be willing, even if it were legal or practicable, to have existing funds diverted from the present or contemplated projects, worked out with the aid of the State highway departments, solely to the construction of such roads. The largest service will be rendered not only to farmers but, in the long run, also to urban people by following the principle of constructing roads of the greatest economic importance, selected after careful consideration by the State agencies having adequate knowledge and approved by the Federal department. It seems to me clear also that as the work proceeds we shall have roads which will be equally serviceable not only to those interested immediately in long-distance automobile travel and motor-truck transportation, but also to those interested in getting their farm produce to the market in the easiest and the most effective manner and in the transportation of the mails. I have no prejudice against any sort of road, except a bad road, or against any sort of construction, except wasteful and unsubstantial construction. If traffic conditions require heavy construction, then I am in favor of it; and in any case, under the law, the construction must be substantial.

"The road-construction movement is growing very rapidly. The Federal-aid road act has done much to promote it. It has stimulated financial aid and has caused many State legislatures to create central highway departments. Experience has brought about amendments to the law and helpful changes in administration. Comprehensive road programs have been inaugurated. They are being pushed vigorously. They will result, in a shorter time than most people imagine, not only in a network of good, substantial roads in the various States of the Union, but also in the requisite interstate highways.

"Why at this stage introduce complications and embarrassments? Why hould not the friends of the movement for roads to serve the people cooperate? It is difficult for me to see why all who are animated by high public spirit in their thinking concerning highways should not cooperate in the development of present programs and in the perfection of the existing processes and machinery, instead of attempting to overthrow them. I believe that many of those who are backing the proposed change do not know the facts and are not aware of existing conditions and possibilities. I believe also that their proposal stands very little chance of being enacted into law.

"You may be interested in the inclosed copy of a statement regarding the Federal-aid road act as amended, which I issued a short time ago."

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 17, 1919:

Currants and Gooseberries. Farmers' Bulletin 1024.

Retail Prices of Nitrate of Soda and Acid Phosphate. Department Circular 39.

The Commercial Apple Industry in the United States. Yearbook Separate 767.

Live Stock, 1918. Yearbook Separate 793.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

In most communities there is a great opportunity for marketing eggs and poultry by parcel post. Often this plan gives better satisfaction than the usual method.

Chickens never wash, as many other birds do, but cleanse themselves of insects by wallowing in soil. For this reason every poultry house should be provided with a dust box.

The housewife must not practice economy at the expense of the health of her family. Growing children must have good milk to drink as well as other nourishing food.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Building Sweet-Potato Storage.

This will be a big year in sweet-potato storage-house construction in the South, according to a specialist of the United States Department of Agriculture, who recently made an inspection of storage houses in Louisiana erected in the fall of 1918. The success of these houses is remarkable, he reports, when the adverse conditions under which the crop was harvested are considered. Records kept by several growers show a loss from rot as low as 1 per cent. Plans have already been made for erection this season in Louisiana of eight storage houses with an average capacity of 20,000 bushels. A Georgia company is operating storage houses with an aggregate capacity of more than 125,000 bushels. These houses, which have been in successful operation for several years, were erected according to plans furnished by the Bureau of Markets.

"B. A. I." 35 Years Old.

May 29 will be the thirty-fifth birthday of the Bureau of Animal Industry of the United States Department of Agriculture. When the bureau began operations in 1884 it had a staff of less than 20 employees; now it has more than 5,200 working through 13 divisions and offices. The bureau works to upbuild the live-stock industry generally and to lay a foundation for its development along permanent lines. Ninety per cent of its employees are in the field carrying on organized inspection and extension work in every State in the Union and in some foreign countries. Included in the major work of the bureau is eradication of animal diseases, such as tuberculosis, hog cholera, scabies, and the fever carried by the cattle tick, and some of its most effective work has been done in stamping out epidemics of the dangerous scourge, foot-and-mouth disease. It conducts Federal meat inspection, investigates methods of breeding and handling all kinds of live stock and poultry, and administers Federal quarantines against infectious animal diseases.

"Vinegar Bees" Have Little Value.

Housewives can avoid being stung by "vinegar bees" or "beer bees" if they will keep in mind that the product advertised under these and other names is only a wild yeast of little value, say the specialists of the Bureau of Chemistry, United States Department of Agriculture. Many inquiries recently received indicate that some enterprising individuals and firms are advertising this wild yeast under the names "vinegar bees," "beer bees," "wine bees," "Australian bees," and various other designations. Extravagant claims are made for the product, and a fancy price out of all proportion to its original cost or actual worth is asked, say the yeast specialists of the department.

In some advertisements which have reached the department the sellers assert that the substance, when mixed with water and molasses or sugar, will produce vinegar, beer, or wine. Other promoters go so far as to say that the fermented mixture is beneficial in the treatment of rheumatism and kidney trouble—claims which have no foundation in fact.

The primitive process for making "bees" was to expose to the air a mixture of corn meal and molasses until it became impregnated with wild yeast and bacteria. The ferment so produced was employed locally in making a sort of vinegar or certain alcoholic solutions by adding it to a mixture of water and either brown sugar or molasses, which was then allowed to work or ferment.

In the opinion of the department specialists, a product made by catching yeast and bacteria indiscriminately from the air may contain harmful as well as desirable organisms, and the specialists state that great care should be exercised in both the preparation and the use of such a product. In their judgment "bees" is not as well suited for fermentation as is the ordinary yeast cake which can be obtained from any grocer at much less than the fancy price asked for "vinegar bees," and they can not recommend "bees" at all for making vinegar.

Club Girl Cans for Others.

Seven cents a pint, 10 cents a quart, and 15 cents a half-gallon jar were the prices charged for canning last season by Margaret Kirk, a Yakima County, Wash., club girl. After she and two other girls had completed several years of canning-club work, the club leader of the county, appointed by the United States Department of Agriculture and the State college, proposed that they sell their canning experience. Busy housewives in their locality were eager to employ some one who could do this work for them. The little industry at first was established in the high-school kitchen, but when the other two girls found difficulty in continuing the work Miss Kirk moved it to her own home. Her patrons brought the produce, jars, and other necessities to her and returned for the finished work. All summer she had as many patrons as she could accommodate. Her profits for her summer's work were $312.37. Besides this commercial work, she canned for her own family and spent several days at the schoolhouse canning for the soldiers at Camp Lewis. Miss Kirk was awarded the Washington State championship for canning in 1918.

Sugar Crop Above Average.

In the sugar "campaigns" recently ended the United States has produced an amount of sugar that is estimated by the United States Department of Agriculture's Bureau of Crop Estimates to be over 2,140,000,000 pounds, and this quantity is 25,000,000 pounds above the average of the last six years, beginning with the year before the war began. Having two principal sources of domestic sugar production, beet and cane, the variations of one crop often fit into those of the other so as to give some degree of steadiness to the total of the two. To some extent this happened last year, since the cane-sugar crop was 569,000,000 pounds, or 60,000,000 pounds above the six-year average, and the beet-sugar crop 1,530,000 pounds, or 30,000,000 under the average, while the production of maple sugar, including the sugar equivalent of sirup, was 41,507,000 pounds, or 5,000,000 pounds below the average.

All together, the domestic sugar crop is usually about one-quarter of the domestic consumption, the receipts from American possessions about one-quarter, and the imports from foreign countries about one-half. Beet-sugar production in the United States has gained rapidly on cane sugar during the last 20 years, and permanently exceeded it in 1906–7, so that it has been about two and three-

quarters times the cane-sugar crop during the last six years.

To the sugar production may be added that of sirup and honey. It is estimated that the sugar equivalent of the cane sirup of last year is 174,000,000 pounds, and of the sorghum sirup 146,000,000 pounds, while honey amounted to 54,815,000 pounds (carrying forward the census for 1909), not computed into equivalent sugar. Without including corn sirup, for which no estimate is made, the grand total production of beet sugar, cane sugar and sirup, maple sugar and sirup, and sorghum sirup, all in terms of sugar, and of honey was 2,515,000,000 pounds—a total somewhat above the average of recent years.

Club Work Thrives in Philippines.

Boys and girls in the Philippine Islands are learning the best ways of producing corn and hogs and other farm products in the same kind of clubs that young people in this country have. Although the club work has been in operation only three years in the Philippines, it is now important in every school, and is considered by the superintendent of agricultural extension of the islands as the most productive of all the lines of agricultural activities for which the pupils receive school credit. Last year there were 1,165 agricultural clubs in the islands, with a total enrollment of 18,160 boys and girls. These club members cultivated 270 acres of land planted to vegetables and corn. They owned 58,700 chickens, 2,750 hogs, and cared for 27,592 fruit trees.

"Cashing in" on Club Work.

Three sisters in Granville County, N. C., in 1915, joined a local canning club organized by the home-demonstration agent. The first year they planted one-fifth acre of tomatoes. Besides using all they needed on the table, they filled 1,500 No. 3 cans for markets and cleared $150. The next year a larger garden, containing tomatoes, corn, string beans, and peas, was planted. In addition to what the family ate, fresh and canned, 2,000 cans were sold. The profits paid half the expense of a sister in college and helped the girls' father remodel and paint their home and buy an inexpensive automobile. In 1917 these three club members canned and sold 2,500 large cans. That year's proceeds sent the sister back to college, bought new rugs, and helped put acetylene lights in the house and the barn. The old machine was sold, and $50 of the girls' canning money went toward buying a new and better one. The only canning last year they did was to supply the family table. Their brothers were in the Army, and the sisters volunteered to "carry on" the farm work during their absence

Project Farmers Buy Good Cows.

Project farmers of the western irrigation districts this spring are purchasing foundation dairy stock from Wisconsin, Illinois, and Minnesota in carloads, according to specialists of the United States Department of Agriculture. Previously such cooperative buying has been tested out thoroughly on a small scale, so that the farmers are sure of what they are doing. They figure that it pays them better to purchase heifers and young cows of high-producing grade or pure-bred stock than it would be for them to attempt to raise such animals, because they would have to wait two or three years for the development of such progeny. Groups of farmers combine their purchases and send representatives to the dairying districts of the upper Mississippi River Valley to buy one or more carloads of selected stock. In this way individual farmers gain the benefits of buying in car lots and securing cheaper transportation rates.

Plant Rust-Resistant Asparagus.

The asparagus industry is fast becoming important in South Carolina, and especially in Aiken, Barnwell, Edgefield, and Saluda Counties. In these counties an annual loss of from 15 to 25 per cent of the crop is due to asparagus rust, and county agents are urging growers to use the more productive rust-resistant strains developed by the United States Department of Agriculture. A report from one agent states that a grower in his community who used crowns of the rust-resistant asparagus is highly pleased with the showing it made this season and expects to increase his plantings greatly.

Canning for State Honors.

"Digging in the garden or standing over a stove in July is no Fourth of July picnic," says Hazel Furman, of Lancaster County, Nebr., "but I am glad I became a canning club member, for by the work I have been enabled to earn quite a little money and have had good times with the other club members." She has been in a boys' and girls' club organized by the Department of Agriculture and the State college for three years. The first year she won a few premiums at the county and State fairs. The next year she canned 100 varieties in pint and half-pint jars, which were placed on exhibition at the State fair. This exhibit took the second premium and $26.50 worth of individual prizes. With her mother, she also canned over 500 quarts for home use. Miss Hazel was a member of the local canning-club team which won the blue ribbon at the State fair in 1917, and was sent to Sioux City to compete with teams from three other States. Last year, 1918, the local team again won first prize at the State fair from nine other teams, and later, in the fall, at Sioux City Interstate Fair, competed with teams from eight other States and won first honors.

NATIONAL FOREST IN ALASKA REDUCED BY 307,800 ACRES

The President has signed a proclamation by which 307,800 acres of land are eliminated from the Chugach National Forest in Alaska. The action results from recommendation by the Secretary of Agriculture after a field examination of the area by experts of the Forest Service.

The elimination consists of two separate tracts. One of these, known as the Ship Creek Area, lies along Knik Arm, in the vicinity of Anchorage, Alaska, a point of the Alaska Railway, and contains about 109,300 acres. The second area comprises a strip of national forest land 3 miles wide along the shores of Kachemack Bay and Cook Inlet, between Fox River and Kasilof River, amounting to 198,500 acres.

Much of the eliminated land is reported by the Forest Service examiners to have agricultural possibilities. This does not mean that extensive and desirable farming lands have thus become available for entry, but there are numerous widely scattered tracts which may eventually make homesteads for energetic people accustomed to frontier life.

It is pointed out by officials that this is the second large elimination from Alaska national forests made as a result of the land-classification work being done by the Forest Service. In 1915 the Chugach Forest was reduced by nearly 6,000,000 acres. The present elimination brings the area of the forest down to approximately 5,500,000 acres with a stand of between seven and eight billion board feet of timber, much of which is valuable for airplane stock and paper pulp.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

Vol. VI JUNE 4, 1919 No. 44

WANT FEDERAL LEADERSHIP IN MEETING FORESTRY PROBLEMS

Representatives of Four States Ask Adequate Woodland Protection

Suggest Cooperation to Insure Timber Supply; Need Explained at First of Regional Conferences to Outline Policy

The first of a series of regional conferences planned to consider special conditions in various sections of the country, so that a comprehensive national policy of forest preservation may be formed, was held May 20 in the United States Department of Agriculture. After forest problems of New Jersey, Maryland, Virginia, and West Virginia had been discussed by representatives of those States and of the Forest Service of the Department of Agriculture the following resolution was presented by Col. Eugene C. Massey, former member of the Virginia State Legislature, and was adopted:

"Forestry questions are National questions as well as State and local questions, and it is the sense of this conference that the National Government should assume leadership in these matters and aid and cooperate with the several States in furnishing adequate protection from forest fires, in perpetuating existing forests, and in reforesting devastated forest districts or regions, upon such conditions as may seem just and necessary."

Some of the delegates suggested that the Federal Government should cooperate with the States in forestry work on lines similar to those prescribed in the Federal aid road act and the Smith-Lever Act providing for agricultural extension work, and should make appropriations, to be matched by the States.

Timber Near End

"Timber in the East is rapidly approaching an end," said Col. Henry S. Graves, Chief of the Forest Service, who presided. "If the war emergency had come 15 years later, we would have had difficulty in meeting our requirements for wood products, except with great delays and embarrassments due to shipments from great distances. The high prices of lumber are largely due to the depletion of our forests. In hundreds of communities the local supplies of lumber are being exhausted and wood-using factories, often the chief industry of the community, are closing.

"The problems of forest protection and forest perpetuation are not being met. Neither the present nor the future public needs for forests are being provided for. We have our national forests and some State forests, but they are not extensive enough nor well enough distributed to do more than meet a small part of our forest needs. The bulk of our forests are privately owned, and these are not being adequately protected nor are steps being taken to perpetuate them. We are actually using up our forest resources when we might have been growing forests at a rate to enable us to cut the maturing trees freely and with certainty of a sustained forest wealth to continue our industries and to meet our domestic needs. The situation takes on special significance when efforts are being made to build up a large export trade in lumber. It is not sound public economy to build a great export trade on a rapidly diminishing resource, and without an adequate national forest policy.

For Permanent Production

"The new movement in forestry aims to bring about permanent forest production on all lands of the country which are best suited for the growing of trees. There is enough land in this country which otherwise would be idle to produce ample supplies of timber and wood products for our domestic needs and for a large export trade. This can only be done, however, by the adequate protection of our forests and by replacing the old timber, as it is cut, with new growth.

"It is proposed to secure these objectives in two ways: First, by a large extension of the public forests, including those owned by the Government, States, and municipalities; and, second, by bringing about timber growing on pri-

(Continued on page 14.)

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WATCHING FOR ARMY WORM; IT MAY SPREAD FROM TEXAS

Department Tells How to Combat Dangerous, Destructive Insect

Advises Burning, Use of Poisons, and Ditches to Stop Pest That Advances on Growing Crops in Huge Hordes

The army worm—which gets its name from the fact that it moves in immense hordes, leaving a trail of destruction—has appeared in large numbers in the general vicinity of Fort Worth and Dallas, Tex. It is busily engaged in destroying the wheat and oats crop in that State, according to reports to the United States Department of Agriculture. Prevailing damp, cool weather favors the development of the army worm and makes likely an invasion of large proportions within the next four to six weeks in many States east of the Rocky Mountains.

The Department of Agriculture urges all farmers in the threatened regions to watch for the pest in its younger stages and be ready with control measures. Meadows, particularly those planted to millet, timothy, and blue grass, should be frequently examined during the spring and early summer. If small infestations are discovered the grass or grain should be mowed off and straw should be scattered over the spot and burned, thus destroying the worms. If the insects have become distributed over a large area it should be marked off by stakes and the crops should be sprayed heavily with a mixture of Paris green at the rate of 1 pound to 50 gallons of water. This solution should not be applied to corn or it will burn it. Instead, 2 pounds of arsenate of lead powder to 50 gallons of water should be used. Grass or grain sprayed with these poisons should not be fed to live stock.

When the caterpillars are on the march or are starting in on one corner of a field of grain they may be headed off by plowing a deep furrow directly in their path. Then the insects that have

fallen into the furrow may be killed by dragging a log through it.

Early Discovery Essential

The importance of watchfulness on the part of the farmer as a factor in combating the army worm can not be too greatly emphasized, say department specialists. Upon the discovery of the pest in its younger stages depends very largely the possibility of stamping out an infestation before serious injury to crops has occurred. Meadows should be frequently examined during the spring and early summer months, particularly those planted to timothy, blue grass, and especially millet. The thicker and longer the growth the greater the danger from the army worm. The grass or grain should be parted with the hands in various parts of the field and the lower portions of the growth closely examined in order to discover the presence of the small, greenish caterpillars; and if they be found in any number the area covered by the infestation should be determined and vigorous action taken at once to destroy the worms before they become large enough to begin their journey to other portions of the farm.

In case Paris green is used care should be exercised in preventing stock from gaining access to the poisoned grass or grain and being injured or killed by eating it. It is far better to sacrifice a portion of the crop, if the destruction of the pest can be accomplished thereby, because if the army worms are not destroyed they will take the crop anyway and probably devastate other portions of the farm.

Summary of Control Measures

(1) Provide yourself with a spraying apparatus and keep on hand several pounds of some standard insecticide, such as arsenate of lead, arsenite of zinc, or Paris green.

(2) Watch carefully the grass growing among the cultivated field crops in the bottom lands or in the low places of the fields, and upon the first indication of the presence of these caterpillars apply poison spray as recommended in Farmers' Bulletin 731, a copy of which will be sent free on application to the United States Department of Agriculture.

(3) In case of a general invasion, after the caterpillars have gone down into the ground in order to change to the next stage, which is the pupa, give the ground a light cultivation, wherever this is possible. This will cause the death of many of the army-worm pupæ.

(4) When the caterpillars are on the march, or are starting in on one corner of a field of grain, head them off by plowing a deep furrow directly in front of them. Then kill the larvæ falling into this furrow by dragging a log through it. Where the whole field is infested, plow a furrow around it, so as to keep the worms out of the surrounding fields. Keep the furrows free from rubbish, so that the larvæ will have no means of crossing to the farther side.

(5) Spray infested grass and other vegetation that has no value with a mixture of Paris green and water, 2 pounds of the former to 50 gallons of the latter. Do not use the sprayed grass or vegetation for forage.

Spray growing grasses and other forage crops intended for use at a considerably later date with one of the following mixtures:

(a)	Arsenate of lead (powder form), pound	1
	Water gallons	50
(b)	Arsenate of lead (paste form), pounds	2
	Water gallons	50

When corn is infested, apply one of the following poisonous mixtures:

(a)	Arsenate of lead (powder form), pounds	2
	(Or paste form, 4 pounds.)	
	Water gallons	50
(b)	Paris green pound	1
	Lime (freshly slaked) pounds	2
	Water gallons	50
(c)	Arsenite of zinc pound	1
	Lime (freshly slaked) do	1
	Water gallons	50

Never use white arsenic on plants; it will burn them.

(6) An immense amount of good can be accomplished in destroying these worms by the use of a poisoned bait which is scattered broadcast over the infested fields. Take 50 pounds of bran and mix thoroughly with it either 1 pound of Paris green or crude arsenic; then add 2 gallons of low-grade molasses diluted with from 3 to 4 gallons of water and 6 finely chopped lemons. This is especially recommended for fields containing mixtures of grass and cowpeas, cowpeas and sorghum, or fields in which grass has been consumed by the caterpillars.

Do not pasture stock in fields where the grass or other crops have been sprayed with a poison mixture until after heavy rains have fallen, and not before three weeks after the application of the insecticide.

One rat will eat or spoil 4 bushels of grain a year. It costs $2 or $3 a year to feed a rat on your place.

Tools and materials should be kept in their proper places. Do not keep all sizes of bolts or screws mixed together in a single receptacle, but fit up suitable boxes or bins, so that the supplies may be accessible on short notice.

WILL WORK ABROAD TO AID INTERESTS OF U. S. FARMING

First Agricultural Trade Commissioner Named by Department

Edward A. Foley Is to Study Marketing and Distribution of Food Products to Develop and Improve Foreign Trade

The first agricultural trade commissioner to work in foreign lands for the interest of American food producers has been named by the United States Department of Agriculture. He is Edward A. Foley, of San Francisco, Calif., who has been appointed to represent the department's Bureau of Markets in the United Kingdom. Mr. Foley will investigate conditions in the United Kingdom and study the marketing and distribution of farm products with a view to the development and improvement of foreign trade in American agricultural products.

Will Travel in Territory

Mr. Foley recently sailed for Liverpool, England. As he is to do much traveling, at the beginning of the work, at least, his headquarters abroad have not been fixed.

Mr. Foley was graduated in 1905 from the law school of the University of California. For four years he was assistant to the chief counselor of the Southern Pacific Railway Co. and the Pacific Mail Steamship Co., handling questions on the imports and exports of food products.

He then became an attorney for the Italian consulate at San Francisco, his experience there covering the importation and marketing of Italian products and the exportation of American products to Italy. Mr. Foley also was attorney for exporters of dried fruits, flour, and wines to the Far East.

Served Food Administration

Upon the entrance of the United States into the war he came to Washington as solicitor of the enforcement division of the Food Administration, and was in charge of the enforcement of regulations governing perishable fruits and produce. During his service with the Food Administration Mr. Foley investigated methods of handling and marketing foodstuffs, including canned goods, and also of cottonseed products.

He was a representative of the Food Administration in joint hearings of the Federal Trade Commission and the Food Administration, and also represented that body in joint hearings with the

Shipping Board Emergency Fleet Corporation in investigations relative to profiteering in foodstuffs by ship chandlers.

MILK AND CREAM DEFINED AS FOOD AND DRUG GUIDE

Definitions and standards for milk and cream, adopted by the Joint Committee on Definitions and Standards and approved by both the Association of American Dairy, Food, and Drug Officials and the Association of Official Agricultural Chemists, to be used as a guide for the enforcement of the food and drugs act, have been published by the United States Department of Agriculture in a circular, "Food Inspection Decision 178."

Milk is defined as the whole, fresh, clean, lacteal secretion obtained by the complete milking of one or more healthy cows, properly fed and kept, excluding that obtained within 15 days before and 5 days after calving, or such longer period as may be necessary to render the milk practically colostrum free.

Pasteurized milk is milk that has been subjected to a temperature not lower than 145° F. for not less than 30 minutes. Unless it is bottled hot, it is promptly cooled to 50° F. or lower.

Skimmed milk is milk from which substantially all of the milk fat has been removed.

Buttermilk is the product that remains when fat is removed from milk or cream, sweet or sour, in the process of churning. It contains not less than 8.5 per cent of milk solids, not fat.

Cream, sweet cream, is that portion of milk, rich in milk fat, which rises to the surface of milk on standing or is separated from it by centrifugal force. It is fresh and clean. It contains not less than 18 per cent of milk fat and not more than two-tenths per cent of acid-reacting substances calculated in terms of lactic acid.

Whipping cream is cream which contains not less than 30 per cent of milk fat.

Homogenized milk or homogenized cream is milk or cream that has been mechanically treated in such a manner as to alter its physical properties, with particular reference to the condition and appearance of the fat globules.

The composition of the milk produced by different breeds of dairy cows varies so greatly, say the food officials, that it is not practicable to fix a standard which is applicable in all localities in the United States and its Territories. It is therefore left to the State and municipal authorities to adopt such standards as their local production conditions may warrant.

SENDS CANNING EXPERTS TO INSTRUCT FRENCH TEACHERS

Department Lends Workers to Demonstrate American Food Conservation

Cooperates with American Commission and French Ministry of Agriculture; Practically All French Canning is Done in Factories

When the Rochambeau steamed out of New York harbor May 24, bound for France, it had on board four canning and drying missionaries to the French. They are missionaries in that they will carry the message of home preservation of food to a country which now does practically no canning at home. There it is a job for factories.

It is a cooperative enterprise, the parties to it being the American Commission for Devastated France, the French Ministry of Agriculture, and the United States Department of Agriculture. The party was made up following a cabled request from the French Minister of Agriculture, through the French High Commission, to Secretary of Agriculture Houston, requesting the loan of some home-demonstration workers who were experts in canning. Two home-demonstration agents in the French regions of Louisiana were selected for the job. They were notified May 17 and started for Washington May 19. They are Miss Erin Dore, of Crowley, Acadia Parish, and Miss Caroline A. Boudreaux, of Scott, Lafayette Parish. With them goes Mrs. Bernice Carter Davis, formerly State home-demonstration agent for Texas, and Dr. Frants P. Lund, canning and drying expert in the Office of Extension Work South, Department of Agriculture.

Little Home Canning in France

But the real beginning of the project is a long way back of the cablegram from the French Minister of Agriculture to the American Secretary of Agriculture. Mrs. Bernice Carter Davis, one of the members of the party of four, was in France last fall for the American Commission for Devastated France. She discovered that practically no home canning is done, that practically all canned products are put up in commercial canneries. She found that the Ministry of Agriculture was interested in the home-demonstration work done in the United States by the Department of Agriculture and State colleges. She talked home canning with officials of the ministry. Then she came home and talked it with the American Commission for Devastated France.

The commission then made the offer to the French Government to finance the project of sending a party of canning experts to France, the French Government to arrange itineraries and all details of that kind and the United States Department of Agriculture to lend the workers.

The party left Washington with a full canning equipment—numerous full sets of equipment, in fact. There was taken, also, some canning exhibits, a number of reels of motion pictures of canning work in the South, and everything necessary for a complete course of instruction in canning vegetables, fruits, and meats in the home. A number of American manufacturers made contributions of both tin cans and glass jars and of various kinds of equipment. The Department of Agriculture has prepared the material for a bulletin on canning, to be issued by the French Government.

Will Teach the Teachers

These four American experts are not undertaking to teach canning directly to the housewives of France. When they arrive the ministry of agriculture will have assembled, probably in Paris, the domestic-science teachers from the agricultural schools of the various Departments of France. The four experts from the United States Department of Agriculture will constitute the faculty of a school of home canning, the student body being the domestic-science teachers of the French Agricultural schools.

After that a tour of France will be made, the itinerary covering the institutions at which are stationed the domestic-science teachers who were students in the initial school. A three days' canning demonstration will be held at each of these agricultural schools, which are described as intermediate between State colleges of agriculture and agricultural high schools in the United States.

It is expected that between four and five months will be required for the work. The anticipated result is the training of a corps of French teachers for home instruction in canning. Incidentally, some results beneficial to the United States will be accomplished. With the development of home canning in France there will be a demand for American-made cans and jars and canning equipment. As yet France has done little toward quantity production of cans and canning equipment. Tin cans are still made, mostly by hand, slowly and in small quantities.

The general-purpose breeds of poultry are best for the back-yard flock. They will supply both eggs and meat. They are usually good sitters and good mothers.

HAY STACKERS SAVE LABOR IN BUSY HARVESTING SEASON

New Department Bulletin Tells How to Make and Use Them

Unloading By Machine Releases Hand Power by Use of Horses; Life, 10 to 12 Years; Repairs Cheap

Thousands of farmers who faced the harvesting of a large hay crop last year with fewer hands than usual to help do the work owe their success in handling and saving their crop to hay stackers. The hay stacker is to stackiug what the horse fork is to putting hay in the barn, a saver of man and labor. It lifts the hay on the stack by horse power instead of man power. When hay is loaded on the wagon by hand and unloaded by a stacker one-half of the hand labor is eliminated. If push rakes or hay loaders are used in connection with the stacker the laborious task of pitching by hand is entirely avoided.

These points are brought out in Farmers' Bulletin 1009, recently published by the United States Department of Agriculture, which describes the different types of stackers in use, discusses the conditions favorable for each type, and tells how to make them.

Useful in East and South

In the East and South, where much of the hay grown is stored under cover, a stacker could be used to advantage when it becomes necessary to stack, especially where labor is scarce. A boy who can drive a team can take the place of a man in the hayiug operation. Two men and a boy using a loader and stacker will handle about 75 per cent more hay for each man during a day than a three-man crew loading and unloading by hand.

Hay stackers are classed by the bulletin iu two geueral types, one having teeth on which the hay is gathered and brought to the stack on push racks; the other consisting of stackers that do not receive hay directly from push racks, but handle it by means of horse forks or slings. Both types are comparatively inexpensive and can usually be made at home with material that is available or which can be readily assembled on the farm.

A stacker will last from 10 to 12 years under ordinary conditions, and the cost of repair is small. On 27 farms in central Kansas, which stack an average of 144 tons of hay a year, all charges against the stackers amounted to less than 7 cents a ton when the yield was 1 ton an acre.

Small Stacks Not Economical

In building a haystack with a stacker it is scarcely economical to make one containing less than 10 tons, according to the bulletin. In locating stacks long or difficult hauls should be avoided whenever possible. It is very common on many farms to see stacks of hay at the end or corner of the field next to the farm buildings, the site being chosen in order to have the hay handy for feeding. The total distance traveled in bringing hay to one side of a square field is approximately 50 per cent greater than in hauling to the center. If the stack is located at one corner of the field, the distance traveled is 100 per cent greater.

To minimize damage by moisture from the ground, care should be taken to keep the hay in the bottom of the stack from coming in contact with the soil. The aim of all good stack builders is to make a stack that will not "take water." This can be accomplished by trampiug the middle well and always keeping it higher than the edges during the process of building. To give the stack further protection, many farmers provide a canvas cover or sheets of corrugated galvanized iron roofing which, when properly put on, practically eliminates loss from rain.

TALL FESCUE MAKES GOOD GRASS CROP; SEED SCARCE

Tall fescue, an upright, perennial grass, has advantages over the more commonly grown meadow fescue, which it resembles closely, forage crop investigators of the United States Department of Agriculture say. Tests with the two grasses conducted by the department indicate that the tall fescue produces more feed and is in general more hardy or robust. It does not appear to be susceptible to attacks of oat smut, which frequently damages the seed crop of the meadow fescue in Kansas, Nebraska, and Missouri. While somewhat coarser it appears to be equally palatable and nutritious. Apparently the only objection to it is that it does not produce seed as abundantly as the meadow fescue, and the principal reason why it is not more generally grown is the high price of the seed. Because the seed is scarce and expensive it is frequently poor in quality, which is accountable for the difficulty experienced by some growers in getting a good stand.

Tall fescue has the undesirable habit of ripening its seed very unevenly, and this fault, with the fact that it sends up few seed-producing stems, makes the yield light. Fields in northeastern Kansas which ordinarily yield 12 to 18 bushels of meadow fescue seed produce only 3 to 7 bushels an acre of tall fescue. Tests at Pullman, Wash., indicate that in eastern Washington seed can be produced more successfully than in eastern Kansas. Plaùted in rows 18 inches apart and cultivated, yields as high as 24 bushels an acre have been obtained.

When and How to Seed

In eastern Kansas and Missouri fall seeding of tall fescue seems to give the best results, but in sections where the winters are more severe, and where there is considerable freezing and thawing, causing the ground to heave badly, spring seeding is preferable. It is a good practice to sow on ground that has been previously in wheat or oats and which has been plowed in July or early August. Tall fescue is also sown successfully in fall wheat or rye. Seed may be sown either broadcast or with a press drill, the latter method giving the best results. When a drill is used it is well to sow one-half of the seed each way, so as to cover the ground more evenly. A perfect stand is sometimes secured with about 15 pounds of seed an acre, but 20 to 25 pounds are recommended under most conditions.

Harvesting the Crop

When the meadow is intended primarily as a hay crop the grass is cut with a mower just as it is coming into bloom. The processes of curing and stacking are similar to those for timothy and other hay grasses. In harvesting the seed crop the grass must be cut as soon as it begins to take on a yellowish color, otherwise considerable seed will be lost through shattering. It is cut with a grain binder and placed in small shocks to cure, and the thrashing ordinarily is done directly from the shocks in the field. An ordinary grain separator can be used for thrashiug by cutting off most of the blast from the fan. Special screens are of value, but are not necessary, as a wheat riddle does fairly satisfactory work.

Tall fescue is valued highly in England for seeding pastures and meadows on account of its heavy foliage. If the seed were lower in price it could be used to good advantage in many parts of the United States in pasture mixtures. Its evident rust resistance and vigorous growth would give it preference over meadow fescue for seeding in pastures, and it would no doubt be widely used, as it is adapted for all sections where timothy is grown successfully, and even somewhat farther west and south.

Thrashing Rings Displace Custom Work; Teamwork by Farmers Gives Benefits

When a farmer plans to thrash from the field, engages a custom thrashing crew to do the work on a certain day and the outfit does not appear until three weeks after the specified time, is it any wonder that the countryman makes a few pointed remarks concerning custom thrashermen in general and this one in particular?

Unreliability of custom thrashers, labor complications which ofteu arise when two outfits reach a neighborhood the same day, the expense of custom thrashiug, the careless and extravagant work of some hired machines, and similar factors have caused grain growers in the Corn Belt to organize cooperative thrashing rings for the purchase, maintenance, and efficient operation of thrashing machinery.

Benefits of the thrashing ring are shown in an instance reported by the United States Department of Agriculture in Separate 772 of the Yearbook. One large thrashing ring which has been particularly successful and which has met all expenses aud paid for itself in four years out of the money ordinarily paid by the members for custom thrashing is the Up-to-Date Threshing Co., of Livingston County, Ill., which is composed of 10 members who own 15 farms. The partnership capital originally totaled $3,275, and the equipment included a 20-horsepower steam engine, a water tank, a separator with a 34-inch cylinder, a corn sheller, and a second-hand silage cutter, which has been replaced by a new one. The total thrashing force usually employed in this riug for field work consists of 10 men with teams to haul bundles; 5 pitchers in the field; 3 men with teams to haul the thrashed grain; 2 men to help unload the grain at the barn; 1 man on the stack; 1 man to operate the stacker; 1 man to clean up about the machinery; 1 water boy; and 3 men with the thrashing outfit. This involves a force of 27 men. A ring of this size demands capable management to insure success.

On Smaller Scale

A smaller thrashing ring, organized last year in Fayette County, Ohio, consists of three landowners, whose partnership capital consists of $1,000, which represents the cost of a small 22-inch separator, with a clover-seed attachment, the power being furnished by a 12–24 farm tractor. These farms aggregate 400 acres of small grain, a little outside thrashing for hire being done each year. Last year 2,800 bushels of oats, 9,000 bushels of wheat, and 100 bushels of clover seed were thrashed. The ordiuary crew was made up of five men, with teams and wagons to haul bundles; two men, with 125-bushel wagon beds to haul grain 3 miles; one man to manage the outfit, and a boy to help. Bundle wagons were used to replace two or three field pitchers, while the use of a gas engine also dispenses with the water boy. The engineer has time to help considerably about the separator. With this small force, this outfit was able to thrash and deliver to the elevator, 3 miles distant, an average of approximately 750 bushels of wheat a day.

Smaller Units Favored

During the last two or three years the number of thrashing outfits sold to farm organizations has greatly increased, and the tendency at present is toward the formation of smaller cooperative units and the purchase of small outfits. This comes from the necessity for more economical use of labor and the advent of the farm tractor, the power of which can be well utilized to run a small thrasher, which, complete with a wind stacker, self-feeder, and weigher, costs about $1,200. Most of the farmers' clubs are small, so that all members may get their thrashing finished in about 15 days. All thrashing is completed in seasonable time, so that the grain may be saved to best advantage.

Advantages of Rings

There are two geueral methods of ring cooperation, the most common involving the hiring of a thrashing outfit, the other its purchase.

Thrashing rings are bcueficial inasmuch as the thrashing calendar in a neighborhood may be so arranged that the work can be carried out with the least possible loss of time in moving from farm to farm. As a job nears completion, the first men through, knowing their assiguments in the next place, may go there immediately and have the grain ready to thrash by the time the outfit arrives and is set up. No time is lost either in contracting for an outfit or in securing a thrashing crew. Certain men may be used to best advantage by assigning them to one kind of work for the season. Unless the weather man prevents thrashing continues until all the jobs are completed in the circle, and thus little extra work is required in shifting wagon boxes or hay loaders. Usually the thrashing season is greatly shortened and this favors the timely completion of the subsequent fall work, such as plowing, seeding, distributing manure, and so on. The thrashing ring reduces the work of the housewife, as there are less men to feed during the harvest seasou.

Practically all the thrashing rings perform some outside work as accommodation at the customary rates, or to enlarge the ring in order to secure all the necessary help.

Where a ring buys all the machinery new—separator, power, clover huller, and possibly a grain sheller or a silage cutter—and builds a shed to house the implements, the total capital under prewar prices required usually amounts to $3,000 or $4,000. When it is possible for the company to hire a good engine or some other part of the equlpment, it may not be advisable to buy.

Thrashing for the various members of the ring is performed on a business basis, an average day's work being regarded as 2,000 bushels of oats, or about 1,000 bushels of wheat or rye. Record is kept of the time put in by each laborer and the costs of the work are distributed among the members ou the basis of the amount of grain thrashed. Farmers iuterested in the organization and promotion of thrashing rings may obtain copies of the publication describing them by writing to the United States Department of Agriculture, Washington, D. C.

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commissiou announces open competitive examinations for the positions of assistant in cotton testing, grades 1 and 2, for men only, on July 1, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, Washington, D. C., at eutrance salaries ranging from $1,800 to $2,400 for assistant in cotton testing (Grade 1), and from $1,200 to $1,800 a year for assistant in cotton testing (Grade 2), will be filled from these examinations. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

The proper maintenance of farm machines uot only saves money but avoids danger to those who operate them. Keeping the harness and vehicles in repair may prevent a dangerous runaway.

LOOKING FORWARD IN FARMING OPERATIONS

Seasonal Suggestions by the United States Department of Agriculture in Anticipation of Farming Problems During the Next Few Weeks

NORTH AND WEST

By the Office of Extension Work North and West

SAVE CLOVER FOR SEED

Drought during the summer of 1918 and the war have caused a shortage in red clover and crimson clover seed, and it is important in sections where seed can be profitably grown that as many acres of clover be left for seed as can be used without seriously interfering with crop rotation. If the second crop is to be left for seed, the possibility of a good crop will be greatly increased if the first crop is cut early. This is especially true if there is any danger from the clover flower midge. Early cutting of the first crop may result in a smaller tonnage of hay and hay not quite as nutritious, but it will destroy the midge. If the field is badly affected with midge and the larvae have had time to mature, a good seed crop is out of the question. A careful examination of the field should be made for midge about the middle of June. For further detailed instruction see Farmers' Bulletin 971.

In sections where mammoth clover is grown fields intended for seed should be rolled during June. This will cause the stems to lie close to the ground. The flower heads will then bend up and can be harvested, leaving a large part of the clover upon the ground to be turned under for fertilizer. This will reduce the amount of straw necessary to handle in hulling.

Write your extension director for Farmers' Bulletins 455, Red Clover; 838. Harvesting Hay with the Sweep Rake; 943, Haymaking; and 977, Hay Caps. They give methods of making clover hay. Others may be published by your State agricultural college.

THRASHING SCHOOLS TO TEACH SAVING

The coming thrashing season promises to be a very busy one. With the estimated production of 1,000,000,000 bushels of wheat, many bushels will be lost if proper preparation is not made for harvesting, thrashing, and storage of the crop.

In many localities thrashing machines may be scarce. It is important that each farmer secure an early date for thrashing so that each machine may be operated at maximum efficiency and capacity by making out the routing before the work starts.

An individual loss of a few bushels of grain may seem a small matter, but taken in aggregate for the Nation may amount to many millions of bushels. Every effort should be made by the farmer to cooperate with the thrasherman in saving grain. In the State of Kansas alone it has been estimated that more than 8,000,000 bushels of wheat were saved during the season of 1918 by careful operation of grain separator and the excellent teamwork of farmers and thrashermen.

The exteusion division of the college of agriculture of many of the States, in cooperation with the Rural Engineering Division of the Bureau of Public Roads of the Department of Agriculture will hold thrasher schools for thrashermen and farmers, for the purpose of giving instruction in the care, repair, and operation of grain separators. These schools will be held in several localities in most of the States, thereby providing an opportunity for every interested thrasherman and grain grower to attend without appreciable inconvenience.

ORCHARD CULTIVATION NEEDED

If the orchard has not yet been plowed or disked, either plow or disk it at once, and then cultivate or harrow the ground every 10 days or 2 weeks until time to sow the cover crop seed the latter part of July or early part of August, if weather conditions are favorable then. Cultivation helps to make plant food and moisture available for the trees, and thus increases tree growth and crop production. In a few localities where there is an abundance or moisture for both sod and trees it is not necessary to cultivate the ground. If the orchard is on hilly ground which would wash badly with heavy rains, it may not be advisable to cultivate the ground.

KEEP BEEF CALVES GROWING

Beef calves on pasture should be kept in a thrifty, growing condition. If the pasture becomes short the cows should be fed, otherwise the development of the calves may be checked. Ensilage, if available, is the cheapest and best feed. Good hay is an excellent supplementary feed, and cows, even on a fairly good pasture, seem to relish a small quantity of

(*Continued on page 7.*)

IN THE SOUTH

By the Office of Extension Work South

CULTIVATION IN FOREGROUND

The next few weeks are the busiest of the year for the cultivators and other implements for killing weeds. Farmers should take advantage of the first opportunity to get rid of weeds and grass while they are still small. When starting, weeds are easily killed by the stirring of the surface of the soil, while if allowed to grow for a few days the problem is much more difficult of solution. Frequent use of the harrow and cultivators during June and early July means fewer weeds in the cultivated crops and a bigger harvest next fall.

STILL TIME FOR FORAGE CROPS

Any farmer who is likely to be short of forage next fall or winter still has time to meet this difficulty. Soy beans or cowpeas planted during June will make sufficient growth to be cut for hay, and in many instances will even mature grain before killed by frosts. Likewise the man who needs silage and has not planned sufficient acreage to fill his silo can well afford to plant an additional acreage of corn or sorghum crops for that purpose. But very few farmers with 10 or more cows can afford to be without a silo and every effort should be made to grow sufficient silage crops to supply necessary needs.

SAVE ALL THE GRAIN

Under average conditions the loss of grain during harvest is far greater than is generally supposed by the average farmer. Poor work on the part of the binder, shattering during shocking and hauling, faulty work of the separator, and minor losses at the machine result in a waste of millions of bushels every year. With a guaranteed price every farmer is offered an incentive to reduce such losses to a minimum this season. See that the binder is in good working order, handle the bundles carefully, using a tight floor or canvas on the wagon in hauling, and a demand by the farmer that the separator do efficient work will

save many dollars worth of grain as well as add to the pocketbook of the farmer.

CARE IN HARVESTING OATS

Because of relatively small acreages per farm, oats in the South should be allowed to stand until fully ripe; that is, until just after the grain passes out of the hard dough stage. However, if the area is small and the cradle is used, the grain may be cut when passing out of the milk stage, as it usually is allowed to cure for a short time in the swath before being bound and placed in shocks.

Shocking should be done carefully. Too frequently little or no attention is given to the method of shocking, and in the event of storms and rainy weather much of the grain is damaged, whereas if the shocks had been well built and properly capped little damage would have occurred. Where frequent rains interfere with the curing of the oats in the shock, it is advised that shock covers be used if possible.

TIME TO BEGIN POULTRY CULLING

Suggestions made for April and May in poultry production still apply in most instances during June and July. It is not yet too late to preserve eggs for next winter's use. Persons not familiar with the process of preserving eggs should get in touch with their county agent or write direct to the Department of Agriculture for the necessary instructions.

With the coming of the hot days poultry growers should see that the chicks have plenty of clean, fresh water, which should be kept in the shade and changed frequently.

Lice and mice are very busy at this season of the year. They are probably doing more damage than the average person realizes. Poultry raisers should make frequent inspections of the birds and houses and wage a constant warfare against these vermin.

It is time to begin culling the flock. Eliminate as soon as possible the weaklings, those having deformities, or any others that you are sure will not pay. Feed is too expensive to be consumed by poor birds. Keep a sufficient number of the good ones but get rid of the poor ones just as soon as possible.

KEEP HOME GARDENS GOING

With the coming of hot weather far too many gardens are allowed to stop work. By planting a succession of crops, fresh vegetables may be had throughout the growing season and a canning period may likewise be extended throughout the summer rather than for a short period during July. Snap beans, both of the bush and pole varieties, may be planted every two weeks until the first of August. Successive plantings of sweet corn may be made until the middle of July. A few plants of New Zealand spinach will furnish greens during the entire season. Keep the garden working all the time rather than for just a few weeks early in the spring.

CANNING AND DRYING NOW

The canning and drying season will soon be at its maximum. If containers have not been secured, order them at once. Make sure the tops and jars on hand are in good condition, and likewise get a plentiful supply of good rubbers. Can and dry a sufficient quantity of early fruits and vegetables for next winter's use, and also make the necessary plans for putting up berry and fruit juices by laying in plenty of bottles, caps, and other needed supplies.

LESS FIRE, LESS ICE

Entirely too many farm homes are not acquainted with the benefits of the fireless cooker and the iceless refrigerator. Both of these conveniences may be made at home with little expense. Foods prepared in the fireless cooker are as good as those prepared on the stove, and the use of this convenience will save many hours in the hot kitchen. The iceless refrigerator will keep milk, butter, eggs, and vegetables much longer than in an ordinary temperature. Get in touch with your home-demonstration agent and learn how these useful conveniences may be made at home.

KEEPING DOWN FLIES AND MOSQUITOES

With the coming of the hot days of June and July, expect the usual annoyance and danger from flies and mosquitoes. A few well-made fly traps, a little kerosene poured on the surface of the water in the rain barrel, and the exercise of care to prevent water from standing in puddles or tin cans and other receptacles will do much to prevent the development of these insects. Enlist the boys and the girls in the fly and mosquito eradication campaigns.

A practical way to provide storage facilities easily available to the producer is to form farmers' cooperative organizations for building and operating warehouses.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 6.*)

dry feed. Soy beans, cow peas, or other pasture crops may be used. If it is not practicable to supply supplementary feeds to the cows the calves should be fed a little grain. This can be done easily by placing a small quantity in a creep in the pasture. A mixture of one-third corn, one-third oats, and one-third bran by weight is a good feed for this purpose.

WEANING PIGS

Too many farmers follow the practice of weaning pigs when too young, many being weaned at six and seven weeks of age. A good brood sow properly fed has a good flow of milk when the pigs are of this age. There is no better feed for growing pigs than their mother's milk, consequently it should be used to the greatest extent possible. Unless there is some extraordinary reason for earlier weaning the pigs should not be weaned under the age of 10 weeks, and it is better to let them nurse until they are 12 or 14 weeks old.

Often serious results follow weaning at too early an age. An entire change of feed following weaning may create serious trouble. If, however, pigs have access to corn, shorts, middlings or tankage, or fish meal in a self feeder placed in the open where they can eat at pleasure without being disturbed by other hogs, they can be weaned at the age of 12 or 14 weeks, with very little change in their feed, by allowing them to continue on the self feeder.

To obtain the best results pigs should gain continuously until they are ready for market. The best results will not be obtained unless pigs have access all the time possible to good forage crops, alfalfa and red clover preferred. If these feeds can not be procured, rye, oats, barley, cowpeas, rape, or any other grain or grasses that will produce good forage in the locality, should be sown. The pigs should be watched closely to see that they are on their feed. If they are not, the feed should be changed, replacing corn with barley, and using skim milk or buttermilk if possible. The pigs should be kept free from lice by the use of crude or good black oil. They must have access at all times to good pure water. Shade must be provided during the hot summer months. Natural shade is always best, but where this is not obtainable, temporary shade may be provided by setting posts and nailing boards on poles about 3½ or 4 feet from the ground and covering with straw or grass.

(*Continued on page 12.*)

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

17-YEAR LOCUSTS EMERGE FROM GROUND ON SCHEDULE

After 17 years underground the periodical cicadas—"17-year locusts"—of brood No. 10 began emerging in the latitude of Washington in considerable numbers the night of May 21. The great swarms were expected to come out during the next few nights. During the next few days tree trunks, bushes, and chunks were thickly studded with cast pupa skins.

The period during which the cicadas do damage to trees by splitting the branches to deposit eggs would not begin for 10 days or so, said entomologists of the United States Department of Agriculture. Within that period it would be easily possible for the individual orchardist or farmer to determine whether or not the insects were present in sufficient numbers to make protective measures necessary.

The one sure means of protecting young trees, the entomologists say, is to place a bag over each tree. Sprays and similar measures have not been found particularly effective.

The entomologists of the Department of Agriculture undertook a series of cicada studies in connection with this emergence, to determine some points not fully investigated heretofore. Additional experiments were to be made with sprays. A great deal of additional illustrative material was gathered, particularly photographs of the activities of the insects during the night. A series of night studies were made also to determine just when and under what conditions the insects emerge from the ground.

MORE AIRPLANE PATROLS FOR NATIONAL FORESTS

Two additional routes in the patrol of National Forests by Army airplanes, to give early warnings of fires in the forests, have been arranged by the War Department and the Forest Service, United States Department of Agriculture. The routes will be operated from Mather Field, near Sacramento, and were to be placed in operation June 1, on the same day as two routes to be operated from March Field, near Riverside, Calif.

The first route from Mather Field will cover the northern Eldorado and Tahoe Forests on the valley side of the Sierras. It will start from Mather Field and proceed to Placerville, Colfax, Nevada City, Strawberry Valley, and Oroville, where the planes will land at a field now available. This route will be covered in the morning of each day and return trips will be made in the afternoons.

The second route from Mather Field will cover the southern Eldorado and Stanislaus Forests. Starting from Mather Field the route goes to Placerville, Grizzly Flat, Big Trees, and to a landing near Sonora or Tuolumne. This route will be covered in the morning and return trips will be made in the afternoons. Both of the Mather Field routes have a round-trip length of about 150 miles.

Forest Service reports tell of a successful trial patrol undertaken recently. No difficulty was experienced in detecting fires in heavy timber at elevations of 6,000 to 10,000 feet.

DEPARTMENT INVESTIGATES EXPLOSION IN STARCH MILL

The starch-mill explosion at Cedar Rapids, Iowa, in which a score of lives and $3,000,000 worth of property were lost, according to early press reports, and which possibly could have been due to a dust explosion, was investigated immediately by chemical engineers of the United States Department of Agriculture, who are working to devise appliances and methods for the prevention of disasters in mills where any kind of plant dust is present.

The devices and methods worked out for the prevention of grain-dust disasters have proved successful, according to officials of the Department's Bureau of Chemistry, and should be applied as soon as possible in all industrial enterprises producing inflammable dusts.

The campaign against grain-dust explosions was begun in November, 1917, with a fund provided by the emergency food-production act. Since that time not a single fire or explosion of great magnitude has occurred in grain mills or elevators upon which attention has been concentrated. Previous to the beginning of the campaign there were from one to eight large disasters annually in grain mills or elevators. In the 18 months preceding the campaign, six disastrous dust explosions and fires in mills and elevators alone killed 39 persons, injured 60 others, destroyed 2,500,000 bushels of grain and over $8,000,000 worth of property. Efforts have also been made to reduce fires in cotton gins.

WOOL CONSUMPTION RETURNS RAPIDLY TO NORMAL BASIS

Manufacturers used 11,000,000 pounds more wool during April than in March, 1919, the total being 45,000,000 pounds grease equivalent in April, or an increase of 32 per cent over the amount used in March. The amount of wool consumed by manufacturers during April, 1918, was 70,700,000 pounds grease equivalent, or 36 per cent more than in April of this year.

Increased consumption in April in connection with large holdings on March 31 indicate a rapid return to normal conditions, according to the Bureau of Markets, and confirms the optimistic views held by the trade as to future prospects.

The total amounts of wool used during April, 1919, by condition, according to the Bureau of Markets' monthly wool consumption report, are as follows: Grease wool, 31,200,648; scoured wool, 5,783,910; pulled wool, 2,175,387.

The wide distribution of the potatoes imported from abroad in 1912 and in earlier years makes it possible that wart may have established itself in more than one locality in the United States. Hence, potato growers, potato dealers, and potato users should be on the lookout for it in all parts of the country. Wart is easier to prevent than to control. It is highly important that all localities where it occurs be discovered as soon as possible.

BETTER HOMES MAKE A BETTER NATION

What Home-Demonstration Agents and Other Workers, Federal and State, Are Doing to Spread This Message in Town and Country

Cutting High Cost of Hats By Work of Women in Clubs

Cutting millinery bills by making their own hats is becoming a widespread economy among women members of the clubs organized by the home-demonstration agents from the United States Department of Agriculture and the State colleges. Many who had deemed the making of a hat beyond them have discovered in themselves latent millinery talent. This talent, under the skillful tutelage of the home-demonstration agent, results in hats which even the critical would hesitate to identify as "home-made."

In Washington State the many millinery classes organized this year have been so popular that it was found necessary to limit the number who could attend. Three-day classes in King County, Washington, are popular, the result of the three club meetings being a pretty hat for each club member at a nominal expense.

Material for the hats was a difficult problem. Trips to the city were expensive in time and money for most of the women in the clubs, and when in the city many did not know where to buy to advantage. The best solution found was for the home-demonstration agent to purchase staple supplies, such as braids, silks, trimmings, and shapes, and the club members were better satisfied with the selection they made away from the confusion of the shops. The advice of the home-demonstration agent and the other club members also helps to make a wise choice of frame, color, and trimming.

When additional material is needed for the next lesson and a woman can not conveniently purchase it for herself, the agent includes it in her shopping list. Often larger pieces of material cut to better advantage, and by the class method what is left can be used in another class.

The amount of millinery material purchased wholesale in King County in one month amounted to $150. Nearly all was made into hats before the end of the month. On flowers, feathers, and shapes bought wholesale about one-half of retail prices was saved. By watching for bargains and buying in large amounts the agent has saved also on the material bought at retail.

CONSERVATION SAVES MUCH WOOL

As a result of a wool-saving campaign conducted by home-demonstration agents cooperating with the State agricultural college in Iowa last year, 9,742 reports show a total saving of $308,904.17, and that 3,706½ yards of unused wool cloth were put to advantageous work. Activities included recutting of 21,089 garments and such work as repairing collars, cuffs, binding worn edges, and replacing buttons on 16,552 articles of apparel.

BIG BUSINESS IN BABY CHICKS

Poultry enthusiasm does not wane in St. Johns County, Fla., according to the home-demonstration agent. She has so many calls daily for eggs, baby chicks, and for information on poultry raising that she has little time for other interests. In one week recently 1,000 baby chicks were ordered by club members of the county. A number of other orders for eggs and baby chicks have been placed.

HEALTH CLUBS ARE ORGANIZED

The fact that 33 per cent of candidates were rejected by Army physical examinations because of underweight is being used by promoters of the national health campaign, which is being boosted in Iowa. Home-demonstration agents are cooperating with teachers, food clubs, and parent-teacher associations. It is planned to organize health clubs, to prepare menus, and send out literature relating to such subjects as food, exercise, and health.

True economy in the preparation of meals for the family lies not only in buying wisely but also in making the fullest possible use of what is bought.

Community Rest House Serves Country Women in New Mexico

A few energetic women decided last summer that Roswell, N. Mex., needed a central meeting place and a room where women and children might rest. A large number of country women made Roswell their shopping center, and there was no place where they might brush off the dust and straighten their hats when they arrived in town, nor rest when they wearied of shopping. How to meet such a need became the concern of the home-demonstration agent of the United States Department of Agriculture and the State agricultural college.

Search located a six-room cottage almost opposite a leading hotel. The building was in wretched condition but the location was good. The rent was $25 a month and there were no furnishings.

The woman's club of the town gave $85 for initial expenses and its members also donated much of the furniture. The city council voted $12.50 for upkeep and a canvass of business men resulted in a large number agreeing to pay $1 a month toward the care of the place. The owner of the house, as his gift, had the rooms papered, painted, and cleaned. New gifts of furnishings are still arriving. The stove, donated for the office, had been used in the city jail. Curtains of cretonne and scrim, with plenty of cushions, add a homelike appearance.

The matron, with her mother, uses the rear room for housekeeping and a portion of a large room, known as the children's play room, is curtained off for their bed. One of the duties of the matron is to care for all children whose parents desire to leave them there while shopping. The building is used as a meeting place, rest room, and lunch room by a number of clubs, rural people, and working girls. A committee of nine, known as the community house board of control, meets monthly and transacts business.

Slow baking of inexpensive cake made with one or two eggs will produce cakes of larger volume and finer texture, say experts in the Home Economic Kitchen of the Department of Agriculture. Bake loaf cakes of this type one hour.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Faith in Boys' Clubs Shown by Dairy Farm

In Grayson County, Texas, the county agent recently organized a boys' dairy club of 10 members, each member agreeing to purchase and raise a pure-bred Jersey heifer. The animals were obtained from a local Jersey farm, the boys giving their notes for the cost of the animals, the notes to be due in one year at 8 per cent interest.

To demonstrate their faith in the animals they were selling this farm agreed that if any boy became dissatisfied with his animal he could return it, the farm to cancel the note and pay the boy 10 per cent on his purchase. This was a safe offer for the farm as there is little probability that any boy will become dissatisfied with a fine, pure-bred Jersey heifer, especially after she grows to maturity and develops into a fine milk and butter producing animal. The county regards this as a step in advance in guarantees, demonstrating the faith the sellers have in the value of the cattle they are offering to the boys.

GOOD CANNING RECORD MADE BY THIS CLUB GIRL

"I have dressed myself, paid for music lessons, bought books and thrift stamps, helped my mother, who is a widow, and have enough to pay my expenses in college next year," was the answer of a club girl in Franklin County, N. C., when asked how she had used the money she had made in canning during the past five years.

This girl, Monnie Stallings, a member of a canning club conducted by the United States Department of Agriculture and the North Carolina Agricultural College, has a fine five-year canning record. She joined a canning club in the spring of 1914, when the work was new, and canned 550 No. 3 cans of tomatoes from her tenth-acre that year. She was awarded the medal for the largest number of jars canned from a tenth-acre plot, and also won a number of merchandise prizes. The next year she canned 1,000 cans, and again won the medal for canning the largest number of cans in the county. Her exhibit in glass won $16 in cash prizes. In 1916 her canning exhibit won several prizes—a pure-bred Jersey heifer, worth $100; a college scholarship in domestic science, and $5 in cash. The fourth year 1,300 cans were filled, and an exhibit of them won blue ribbons at her township fair and $27 in cash at the county fair. In the summer of 1918, although it was a bad fruit year in North Carolina, she canned 1,000 cans and won a medal and subscriptions to magazines.

CLUBS MAKE GOOD CITIZENS; DEVELOP DESIRE TO OWN

One result of the boys' and girls' club work is to show to members the value of thrift and to develop the desire to own property. Thus the clubs give the impulse that helps to make good citizens for town and country.

Reports from about 350 members of boys' and girls' clubs in Indiana show that—

Eighteen own liberty bonds; 73 own thrift stamps; 109 own war-savings stamps; 85 own pigs; 46 own calves; 62 own poultry; 26 own sheep; 33 have bank accounts; 117 will go to college; 76 have been in club work two years; 20 have been in club work three years; 9 have been in club work four years; and 4 have been in club work five years.

While 210 club champions selected from the 28,565 club boys and girls in Minnesota were attending the 1918 short course at the State college in April, they reported items of property purchased as the result of profits from boys' and girls' club work during the past two years—

One hundred and twenty-nine had purchased war-savings stamps; 60 had bank accounts; 12 had purchased liberty bonds; 25 owned one or more pure-bred pigs; 47 owned poultry flocks and poultry equipment; 30 owned pure-bred dairy calves or cows; 10 owned sheep; 10 had purchased lots of one or more acres of land; 24 had purchased kitchen equipment and household furniture; 65 still owned a liberal supply of home-canned food products.

Companionship, good times, and a chance to make money are the three things a country boy or girl looks forward to finding in a city. Club work provides them in the country.

Busy-Bees and a Busy Boy—Combination Wins in Kansas

Samuel Winegert is one of many boys in Kansas who "got bees in their bonnets" last year. Honey commands a good price, the expenses are small, and the work light. The number of boys and girls who take up beekeeping under the direction of the Department of Agriculture and the State colleges is increasing.

"My grandpa kept bees and always had plenty of honey," reports Samuel. "When we went to visit him he would give us some to bring home, and then mother would have buckwheat cakes and honey. My, they were good! Papa never could handle bees, as the stings would make him sick; so he didn't keep them.

"One spring day the leader of the boys' and girls' clubs in our county stopped at our place to get my brothers and me to join a club. One joined the pig club and the other the sow and litter club. I wanted something different, so the leader suggested bees. My mother, for $12.95, bought me two hives and what other supplies I had to have and I was enrolled in the bee club.

"I had quite a time finding my bees. I finally got one swarm and went after it early one cold morning. We wrapped it all up in a blanket and got it home without a sting. The other one I bought later, when it was warm weather. I went after it late in the evening. I wrapped them up in a blanket and got them home, but they were cross and I got a couple of stings before they were located where I wished. As I did not want them to swarm, as soon as they would fill a super I would remove it and put on an empty super to keep them busy. A busy boy and a busy bee are alike—they do not have time to play around and swarm.

"We had white clover in the pasture and sweet clover and alfalfa for them to work on later. I saw them working on the corn tassels, fall asters, and smartweed when they were in the timber.

"My bees did well. One hive made 115 pounds of honey and the other made 61½ pounds. Besides, I left two supers full in the hive for the bees to live on

during the winter. If they do not use it all, I will take it out about the 1st of June."

SAVE MUCH FOOD IN CLUBS

Clubs for colored girls have been organized in all the Southern States by the Department of Agriculture and the State colleges. In these clubs there were 50,995 girls last year. The colored club members have the same four-year course which is given the white girls, and are taught gardening, canning, preserving, poultry work, sewing, breadmaking, cooking, and the making of special products. In the 15 Southern States the colored girls in 1918 put up from their own garden plots canned products worth $70,933.80 and dried 49,134 pounds of vegetables and 424,168 pounds of fruit, valued at $94,941.40. Besides the products grown by themselves they conserved $46,100.45 worth of fruit and fruit products. The value of all the food products they conserved in 1918 was $241,401.85.

47 IN PURE-BRED PIG CLUB

Florida's largest pig-club deal probably was the recent purchase of 47 pure-bred Poland China hogs for the Columbia County pig-club boys. The animals were secured by the county agent from an Illinois breeder through the American Poland China Record Association. Eight progressive farmers of the county have purchased pure-bred Poland China boars, so that the boys will be able to breed their sows properly when the animals are old enough. The boars were purchased at the same time as the other pigs and were included in the same shipment. The boys gave their notes for 18 months, no interest being required for the first 12 months.

CLUB MEMBERS EXCHANGE PIGS

Pig club members in Florida are working up an industry among themselves. Some of the members who have been in club work long enough to have some pigs for sale are disposing of their stock to other club members. One club boy has sold $100 worth of pigs to club members this year. Another, who joined the pig club two years ago, is now furnishing pigs to other members, and says he is glad he went into the club work, and believes that every boy and girl who can do so should join.

CLUB MEMBERS SET PACE

Club members in South Carolina have set the pace in the production of stock and food crops for thousands of youngsters as well as grown-ups. Last year the club members added a total of $156,325.67 to the wealth of the State. Recently the nine State winners in the club work were entertained in Charleston, where the annual dinner to prize winners was given by the chamber of commerce of the city.

NATIONAL THRIFT URGED BY GOVERNMENT AGENCIES

Cooperation and coordination of Government departments in aid of a national movement to promote regular saving, wise buying, sound investment, and reinvestment was shown in a recent statement issued by the Treasury Department.

"Five departments—Treasury, Labor, Commerce, Agriculture, and the Interior—are already carrying out plans characteristic of their special domains of work designed to accomplish the general aim, thrift," says the statement. "Not only are the same principles held in common, but ideas and material are intercharged and employed to further the particular lines of each department's work.

"In the Treasury Department, the Savings Division through every form of the spoken and written word is endeavoring to bring home the value of sensible economy as a principle of living; to interpret thrift not as miserliness but as the wise management of one's affairs, taking heed of present and future needs, and steadily saving for worth-while purchases, to take advantage of an opportunity, or against a rainy day. The Savings Division offers in Thrift Stamps and War Savings Stamps a practical inducement to acquiring the power of a financial reserve.

"Realizing that saving is greatly stimulated by having a definite object in view, the Department of Labor has launched the "Own Your Home" movement.

"The Department of Commerce, in conjunction with the Council of National Defense, is engaged in a "Buy Now; But Only What You Need" campaign which engenders real thrift by stressing attention to necessities and eliminating useless expenditure; and which, by supporting essential industries, maintains steady employment and consequently the opportunity to save.

"The Department of Agriculture has undertaken to have its county agents and home demonstration agents, numbering several thousand men and women, include the message of thrift in all their work. The home economics division of the Department of Agriculture is preparing 20 thrift leaflets in cooperation with the savings division of the Treasury for distribution through their own channels and those of the savings division, while every number of Agriculture's official organ, the Weekly News Letter, carries numerous thrift axioms and slogans.

"In the Department of the Interior, the Bureau of Education is making thrift an important part of its Americanization program and of its school and library work. The Indian Bureau has issued material and called on all agents to assist in bringing home the value of intelligent saving and safe investment to the Indian Service."

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 24, 1919:

The Country Grain Dealer and Federal Grain Supervision. Bureau of Markets. S. R. A., No. 47.

Potato Wart—A Dangerous New Disease. Department Circular 32.

Use of Poultry Club Products. Department Circular 36.

Cotton Warehousing—Benefits of an Adequate System. With a Discussion of the Receipt under the United States Warehouse Act. Yearbook Separate 763.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

PULP-WOOD CONSUMPTION DECREASED

Consumption of pulp wood during 1918 showed a decrease of 4 per cent from the 1917 figures, according to reports to the Forest Service of the United States Department of Agriculture. The pulp mills of the United States estimate a total consumption of pulp wood during 1918 of 5,258,305 cords, and the same mills record a total production of 3,313,032 tons of pulp. Thirteen establishments, operating 17 mills, have not yet reported, but since the consumption of these mills is estimated at only 455,579 cords it is not expected that the final report will be materially changed.

Keep watch at digging time for potatoes with warty outgrowths which are light brown when young, black and decayed when old. Report promptly all suspicious cases and send specimens to your county agent or to the plant pathologist at your agricultural experiment station or State college, or to the Plant Disease Survey, United States Department of Agriculture, Washington, D. C.

Will Teach Thrashermen the Three R's of Operating Grain Thrashing Machines.

Grain saving last year filled 11,000,000 2-bushel sacks with wheat which otherwise would have been wasted in straw stacks or over fields. To increase this conservation record this year and to facilitate more efficient operation of thrashing machines the United States Department of Agriculture, in cooperation with the directors of extension work in State agricultural colleges, will conduct schools of three and four days for thrashermen. Instruction will include studies of the proper operation, adjustment, repair, and maintenance of separators and gas and steam engines.

Approximately 250,000 thrashing machines are in the United States. Many owners are not thoroughly experienced in their management and repair. All are expected to be benefited if they attend the thrashermen's schools in their localities. Every thrasherman who is interested in saving grain, reducing idle time when his machine is out of commission, and lengthening the active service of his separator should attend a thrasherman's school, where he will be taught the when, why, where, and how of operating a thrashing outfit and keeping it in the pink of working condition.

Schools Precede Thrashing Season

The first school was to be opened in the Salt River Valley of Arizona about the middle of May. With the ripening of the grain and the approach of the thrashing season the movement of these schools northward will be rapid, so that in nearly every instance a thrashing school is to convene in a certain locality sufficiently in advance of the actual thrashing season to give local operators opportunity to practice what they learn.

The Rural Engineering Division of the United States Department of Agriculture will supervise these schools. In each State the director of extension, with his corps of assistants, will have active charge, while Uncle Sam as supervisor will coordinate the work and introduce from one section to another the features of outstanding importance.

Subjects to Be Covered

The purpose is primarily to improve thrashing conditions. Instruction will cover the theory of the separator, the operation, care, and adjustment of the machine, and sufficient laboratory work to give students skill in adjusting and operating. It is contemplated to hold schools immediately after or prior to the one-day grain standardization schools, directed by the Federal Department's Bureau of Markets.

Necessity for practical education of American thrashermen was brought out strikingly by results in Minnesota last year recording the normal waste of grain in thrashing. Comprehensive tests, which included the work of the more than 6,500 machines in the Gopher State, showed that the average avoidable loss in thrashing wheat was 4.69 bushels a day, worth approximately $9.64; while the avoidable loss in thrashing oats was 9.1 bushels daily, worth then $5.46. Some of the separators wasted as much as 50 bushels of wheat a day, worth, on the basis of the October market, $103. Twenty-five per cent of all the machines tested in Minnesota showed an avoidable loss, due to the machines being out of repair or improperly adjusted, of 15 bushels a day. Therefore Minnesota is to-day a stanch advocate of teaching thrashermen the three R's—running, repairing, and readjusting their thrashing outfits.

LOOKING FORWARD IN FARMING OPERATIONS

NORTH AND WEST

(*Continued from page 7.*)

THINNING HELPS FRUIT

If there is a heavy set of apples, pears, peaches, or plums the surplus fruits should be removed. This relieves the trees from the strain of ripening the extra seeds or pits, which use up a considerable part of the tree vitality. Thinning should be done just after what is known as the "June drop."

Thin peaches so those left average from 4 to 6 inches apart over the bearing twigs. Thin plums so those left will not touch each other when ripe. The rot of peaches and plums does not spread as rapidly on thinned trees as on unthinned trees where the fruits touch.

With apples and pears leave one or two fruits of each cluster, depending upon how close together the clusters are. Take off the small, deformed, and wormy fruits and enough of the others so those left will not touch when ripe.

The fruits from thinned trees will be larger than those from unthinned trees and will make just as many bushels when ripe.

REPAIR PASTURE FENCES

Advantage should be taken of the first lull in farm work to inspect and repair pasture fences. A little time spent from time to time throughout the season in replacing weak posts, tightening or splicing of wire, and driving an occasional staple may save much trouble later when the pasture becomes short and the cattle are tempted by crops in near-by fields. A strong fence discourages cattle from attempting to break out, while a few successful attempts may make regular fence breakers of them. If plenty of water and salt are provided and fences are kept in repair, usually little trouble will be experienced unless the pasture becomes very short and the cattle are lured by other fields.

REMOVE MALES FROM FLOCKS

Produce infertile eggs. They are worth more, as they keep better and they cost less to produce since there are no roosters to feed. No expense, education, ability, or labor other than catching and killing or selling the roosters are necessary. Remove the males at once.

While eggs are plentiful some should be preserved for the winter months, as they will be scarce and high priced. It costs but little in time, money, and labor, and is so easily done that it is only common sense to do it. Use fresh, infertile eggs and let customers know that they can get such eggs for preserving. Those who have never preserved eggs should get in touch with the county or home demonstration agent, the State extension director, or the United States Department of Agriculture.

Now is the time to begin culling flocks. Send the roosters to the chopping block or the market. Eliminate all weaklings and deformed chicks. Get rid of the chick that stands along the side of the coop with its wings down, its feathers ruffled, eye shut, and head down. Do not keep a single chick that you are not sure it will pay to raise.

Shade, clean, fresh water, clean coops, and colony houses, and good ventilation and plenty of room during the night are of the greatest importance in growing healthy, strong, vigorous birds, whether they are for meat, eggs, or breeding.

Growing chicks should have plenty of good, nourishing food. Bone meal should be fed liberally to those intended for layers or breeders.

Do not forget to continue the fight on mites and lice. They must be fought all the time in all sections and in all seasons.

Warehousing under an adequate system has become essential to the efficient marketing of the cotton crop.

Heaviest April Attack on Cattle Tick Shows Aim to Exterminate Parasite

The cattle fever tick was subjected in April of this year to the heaviest attack ever made in any April. That is shown by complete reports to the United States Department of Agriculture.

In April, 1919, there were 5,339,015 dippings of cattle in the "canals to prosperity." This figure compares with 3,880,135 in April, 1918. The great increase in April dippings signifies a determination throughout the tick-infested States to get rid of the parasite as soon as possible, according to officials of the Bureau of Animal Industry.

Special stress has been laid this year on the advantage that comes from killing ticks early in the season, before they have had a chance to multiply by thousands and millions. A new record was set in March of this year, and when April follows with another record figure every reason is seen for believing that 1919 will be the biggest year ever experienced in driving out the destructive insect enemy of the cattle industry in the South.

More Vats in Use

The unprecedented number of dippings in April was made possible by the fact that more dipping vats were available. Those in use this year numbered 30,100, compared with 24,379 in April, 1918. Wherever a dipping vat goes in for effective use the cattle tick goes out.

The State figures follow:

State.	Dippings in April, 1919.	Dippings in April, 1918.	Dipping vats now in use.
Alabama	668,835	409,264	7,750
Arkansas	350,774	2,663	3,392
Florida	240,600	59,943	1,249
Georgia	397,231	221,283	1,016
Louisiana	1,528,346	1,604,900	4,516
Mississippi	435,613	806,377	4,653
North Carolina	929	2,484	382
Oklahoma	313,996	496,610	1,115
South Carolina	96,504	68,939	805
Texas (north)	1,061,724	132,640	4,114
Texas (south)	244,463	75,032	1,108

Texas and Florida Active

The big increases in Texas and Florida are regarded as particularly notable, indicating aggressive work in these States with much quarantined territory. The healthy gain in Alabama is credited largely to the operation of the new State-wide compulsory dipping law. Decreases in Mississippi and South Carolina are due to the fact that these States have been released from Federal quarantine and are now conducting "mopping-up" work in locally infested areas; in Louisiana, to less infestation than a year ago; in Oklahoma, to the work being centered in counties that have less cattle than the counties that were dipping in April, 1918; and in North Carolina, where the work has recently been reorganized.

NATIONAL FORESTS OFFER REAL OUTDOOR RECREATION

Exceptional opportunities for almost every form of outdoor recreation are offered by the National Forests of Colorado, according to a new Department of Agriculture publication entitled "Vacation Days in Colorado." Within the boundaries of these Forests are some of the most important scenery and the finest camping, hunting, and fishing grounds in the State, and it is one of the aims of the Forest Service to make them ideal playgrounds.

Roads built by the Forest Service make accessible to the automobilist a great number of the most attractive areas. For one who prefers the saddle, or just to tramp, there are well-built trails that lead to practically every beauty spot and hunting and fishing ground in the mountain country. At many attractive camp sites permanent fireplaces are constructed and forage is reserved for pack and saddle animals. New roads and trails are constantly being built and many other things done for the convenience and comfort of the tourist and camper.

Best Fishing in Forests

Colorado is famous for its trout fishing, and the National Forests offer the best in the State. Rainbow, native, and eastern brook—all remarkable for size and gameness—are the three varieties to be found in Colorado's 6,000 miles of running streams and 500 lakes. Each year the Forest Service, in cooperation with the Colorado Fish and Game Commission and with private companies and individuals, plants millions of young fish, thus keeping even the most frequented waters plentifully supplied. The only thing required of the angler in the National Forests is compliance with the State game laws. This applies also to the hunter. Big game is often met with in the Forests, but at present the law forbids some species being killed. But stalking game with a camera instead of with a gun furnishes much of interest among the wild life of the mountains. Predatory animals may always be killed—the more the better.

No "Red Tape" for Visitors

There are no burdensome restrictions on the vacationist in the National Forests. Care with fire and proper camp sanitation are practically all that are asked of the visitor. He may go where he pleases, pitch camp wherever the fancy strikes him, and stay as long as he likes. He may have free of charge what wood and forage he needs. If he wishes to stay in the Forest for the entire season and return year after year he may obtain a site for a summer home at a small annual rental.

"Vacation Days in Colorado" contains not only descriptions of the beauty spots in the National Forests but also a multitude of details regarding outfitting points, routes of travel, the best hunting and fishing grounds, and the like, for every National Forest in the State.

Rangers and other field officers are always glad to give any information they can and in other ways to make the visitor's stay in the Forests a pleasant one.

WANT TO KILL LAST TICK; FARMERS ASK COUNTY FUNDS

"Tick eradication has meant successful dairying and beef production for our community."

So states a petition presented to the Commissioners' Court of Harris County, Tex., by farmers who want to reap the full benefits from tick eradication by cleaning out the comparatively few cattle parasites that remained when the county was found to be sufficiently free from ticks for release from Federal quarantine.

It is the policy of the United States Department of Agriculture not to hold under Federal quarantine any counties or larger areas when only scattered areas within the territory are infested by ticks, but after quarantine is removed it is necessary that the remaining ticks be cleaned out before the community will be free from danger of heavy reinfestation. The Harris County petition follows:

"We, the undersigned citizens of the Aldine community of Harris County, Tex., do hereby petition your honorable body to provide sufficient funds to complete the work of tick eradication in this county.

"The dipping of our cattle and cleaning them of ticks last year saved us many dollars both in increased milk sup-

ply and beef production. As just one concrete example, Mr. John Shannon, one of our citizens, was getting 15 gallons of milk from milking 38 ticky cows before he started dipping, and now he is getting 40 gallons of milk from 23 of the same cows. In short, tick eradication has meant successful dairying and beef production for our community, so we all, in one accord, hope that the few ticks that remain in the county may be cleaned up this season and that funds may be provided for this purpose."

The petition is signed by the Aldine Farmers' Cooperative Association, through its president, C. A. Anderson, and its secretary, W. A. Roush, and by 14 other farmers.

Rosy Saltbush Praised Too Highly; Plants Were Confused

The rosy saltbush has been confused in recent publications with the Australian saltbush, and the merits of the former plant have been highly exaggerated. The Australian saltbush is of considerable merit in the region to which it is adapted, California, but the rosy saltbush does not possess sufficient good points to justify anyone in purposely planting it, according to the Bureau of Plant Industry, United States Department of Agriculture.

"The rosy saltbush may prove to have sufficient merit to counterbalance its known troublesomeness as a weed," says the department, "but it is highly doubtful if it is better in this respect than tumbleweed or Russian thistle—old weeds very similar in habits.

"The rosy saltbush is an annual plant native to Europe, and much resembles in appearance and habits the common tumbleweed. In the past 15 years it has spread with great rapidity over nearly all the semiarid States. It prefers alkaline soil, but spreads as a weed on all farm lands, much as does the Russian thistle. In the East rosy saltbush is a rather rare weed in waste places, and appeared in New York and New Jersey as early as 1879. In the West it was found in Wyoming in 1897, and in Washington and Oregon in 1901. Since then it has spread over most of the area west of the one hundredth meridian and in many places in such great abundance as to be a troublesome weed."

The Australian saltbush is a perennial plant that has become established in this country only in California, where it is a really valuable forage plant on the ranges, especially for sheep. It is too tender to survive the winter except in warm climates.

Farm Bureaus to Educate Serbian Boys in American Agriculture; Plan Praised

To educate two Serbian young men in the principles of agriculture and rural life as developed in the United States is an undertaking by farm bureau members of West Virginia. They have provided funds to place two Serbian boys in the Agricultural College of West Virginia, and to pay their necessary expenses for at least two years.

The undertaking is brought to the attention of the agricultural forces of all the States by C. R. Titlow, secretary of the Federal land bank of Baltimore, which administers the district of which West Virginia is a part and until recently director of extension in West Virginia. In a letter to the United States Department of Agriculture, referring to Dr. Stoykovitch, a representative of the Serbian Government, Mr. Titlow says:

"If he could say to his Government and to the farmers' organizations of Serbia, of which there were more than 40 previous to the war, that the farmers of America desire to educate 25 or 40 Serbian boys, it would at once weld the friendly link now existing between that Government and this, and do much toward establishing in the minds and hearts of the common Serbian people the working principles of the democratic and independent rural farmers."

West Virginia farm bureaus, Mr. Titlow relates, many months ago became much interested in the struggle of Serbian farmers to preserve their Government and their homes from destruction by the Germans. After the signing of the armistice they learned that the Serbian Government had sent a representative to this country to purchase seeds and implements in order that farming and rural homes might be reestablished. The representative, Dr. Stoykovitch, attended State meetings of West Virginia farm bureau officers, describing agricultural conditions in Serbia and the aspirations of the people for a democratic government.

The West Virginia farm bureau officers at once pledged themselves to help provide seeds for Serbia, and an organized effort was made to obtain great quantities of seed corn for shipment to that country. To this call West Virginia farmers responded heartily, and then came their decision that it would be in keeping with the spirit of America and would be a demonstration of the working principles of democracy if they would pledge themselves to educate two Serbian boys in American agriculture. N. T. Frame, the present director of extension in West Virginia, has actively supported the movement and deserves credit for completing the arrangements.

WANT FEDERAL LEADERSHIP IN MEETING FORESTRY PROBLEMS

(Continued from page 1.)

vate lands through public direction and cooperation. Action is necessary both by the Federal Government and the States."

Among those attending the conference were:

F. W. Besley, Maryland State forester, Baltimore; Dr. A. F. Woods, president Maryland State Agricultural College, College Park, Md.; W. McCulloh Brown, member Maryland State Board of Forestry, Oakland, Md.; Alfred Gaskill, New Jersey conservation commissioner, Trenton, N. J.; R. Chapin Jones, Virginia State forester, Charlottesville, Va.; A. B. Hastings, assistant Virginia State forester, Charlottesville, Va.; Eugene C. Massie, former member of Virginia Legislature, Richmond, Va.; Edwin P. Cox, member of Virginia State Geological Commission, Richmond, Va.; Nat T. Frame, State director of agricultural extension, Morgantown, W. Va.; H. S. Vandervort, assistant State agent, Morgantown, W. Va.; W. Hoyt Weber, representing Central West Virginia Fire Protective Association; W. D. Tyler, Dante, Va.; F. L. Dakin, Philadelphia, Pa.; P. S. Ridsdale, American Forestry Association, Washington, D. C.; David T. Mason, Bureau of Internal Revenue, Washington, D. C.; and a number of representatives of the Forest Service of the United States Department of Agriculture.

The second conference of the series is to be held in Asheville, N. C., June 4, for North Carolina, Tennessee, and Kentucky.

Clean cultivation, especially the complete elimination of wild sedges and rushes, suitable crop rotation, summer or early fall breaking of cultivated or infested wild soda, early planting of crops menaced by billbugs, and the protection of birds, especially ground feeders, including the bobwhite and the shore birds, are efficient methods for preventing crop losses by bill bugs.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations.

Watching for Army Worm.

The army worm has invaded central Texas and is leaving the trail of its march in destroyed wheat and oats. Weather conditions favor its spread to many States east of the Rocky Mountains. But in its progress the insect army will be subject to the observations of another army—farmers throughout the threatened regions who have been warned by the United States Department of Agriculture to be on their guard and to be ready to burn over infested areas or spray them with a solution of arsenate of lead (powder), 2 pounds to 50 gallons of water. Furrows plowed around infested fields or in the path of the advancing worms also are effective in reducing damage. The worms fall into the furrows and are killed by logs dragged through.

Swat Roosters and Save Millions.

Roosters not needed as breeders should be put in the same class as flies when it comes to swatting. It is estimated by the United States Department of Agriculture that $15,000,000 worth of eggs spoil yearly simply because they are fertile. Fertile eggs, when subjected to high summer temperature, begin to hatch just as when placed in an incubator or under a hen, and even though the process continues but a short time the egg becomes unfit for food. This spoilage of eggs can be entirely prevented by swatting or disposing of the rooster after the breeding season is over. The campaign for the production of infertile eggs has been waged several years by United States Department of Agriculture poultry specialists, and is being taken up with renewed vigor in States where summer temperatures are highest and losses are greatest. Weeks have been designated "Swat the Rooster" for the sale of surplus male birds. Enormous quantities of roosters, not needed and being fed needlessly, have been marketed during such weeks. It is much more generally understood that hens will lay just as well without a male in the flock.

Booklets to Show Dairy Trend.

A series of four booklets, showing where the United States stands in the dairy business in relation to other countries, is to be published by the United States Department of Agriculture through the Dairy Division. While based on statistics dating back to 1850, the booklets will not contain tables of figures, but will give information in graphic charts with explanations showing the trend of the various branches of the dairy industry. The first booklet deals with dairy live stock, the second with the butter industry, the third with the cheese industry, and the fourth with other dairy products, such as market milk, ice cream, and condensed milk. The bulletins also show the development and trend of the industry in the United States and other countries.

Sheep Sheared in Contests.

The first State sheep-shearing contest in Connecticut was staged at Lettes Island early in May by the Connecticut Sheep Breeders' Association, the New Haven County agricultural agent, and the boys' and girls' club leader. Six classes were included in the contest, the principal ones being for flock masters of the State and for members of the boys' sheep clubs. Cash prizes were offered for each class. A sheep-shearing demonstration was held in connection with the contest. A representative of the United States Department of Agriculture reported that the contest indicates keen interest in sheep raising in the State.

Stabilizing the Bean Market.

A few weeks ago the California lima-bean market was a hubbub of confusion. Part of the crop was in the hands of local dealers, some was held by independent growers, while another portion was in the control of the Bean Growers' Exchange. The prices were low and eastern buyers were reluctant to purchase because of the unstable market. Recently a combination has been effected so that the dealers, growers, and exchange have centralized in a commercial agency, and already have marketed 200,000 bags of the 1918 crop. As a consequence of stabilizing the bean market by combination, the prospects are that the lima-bean crop of California for 1919 will be about normal, as planting of the new crop is largely determined by the manner in which the old crop is merchandized, according to the United States Department of Agriculture. One-third of the 1918 crop has been sold at $7 a bag for a total of $4,200,000.

Food Service for Foreign Women.

Buffalo, N. Y., has a thrift kitchen which has been developed by the county home demonstration agent. It is in the neighborhood of numerous factories where many Italian women are employed, and hot dishes with recipes for making them are sold at cost to these women. Thrift kitchens make it possible for women in industry to feed their children suitable food cooked in the right way. Boards of health regard these kitchens with much favor, because they help solve the problem of how to aid the undernourished child.

New Record in Tick Work.

If the cattle-fever tick had any head for figures it would know that it is losing its fight to continue sucking millions of dollars' worth of blood each year from southern cattle. But it has no head for figures, and can not know that it might as well quit now, and therefore must be exterminated. The cattle dippings in April of this year totaled 5,339,015—more than in any previous April, and 1,458,880 more than in April of 1918. The cattle were given baths in 30,100 vats—"canals to prosperity"—compared with 24,379 that were available for use in April a year ago. Every time a cow or steer goes through a dipping vat the ticks on the animal are killed by the arsenical bath. The Federal and State tick fighters look upon the great amount of work done in April as an indication that 1919 will be the greatest year on record in the campaign to eradicate the insect enemy of the southern cattle industry.

Good Records by Southern Clubs.

Three hundred women and girls, enrolled in the canning clubs of Catawba County, N. C., canned 60,000 jars of fruits and vegetables last year. Of this amount 40,000 containers were kept for home use. Much canning and brining was also done by club members of this county.

A 14-year-old girl in a Brunswick County, Va., club cleared over $100 on her summer's work in canning. She is saving her money to pay her way through school.

A club in Bradentown, Fla., canned 4,000 cans of vegetables in one month.

A girl club member in the same county canned and sold during the season 1,800 cans of vegetables. She used her own brand and has a reputation for fine products. She pays her mother $1.50 and her little sister $1 a day for the time they spend assisting in the canning. Her profits have been most satisfactory. Another girl in Bradentown made $150 from her garden plot and canned 700 cans of vegetables.

Last year was the first year of club work for a 12-year-old club girl of Bay Minette, Ala. Her tenth-acre garden was planted with tomatoes only. She sold $60 worth, and her work totaled less than $8.

Marie Collins is a club girl in Mount Pleasant, Tex., who has canned many hundreds of quarts of vegetables. She has found the local hotel a good patron. One sample of her snap beans obtained from the steward of another hotel an order for 300 cans of beans.

The garden and canning clubs organized by the Department of Agriculture and the State colleges enable women and girls to provide plenty of canned fruit and vegetables for the home table and also are a means for making money.

Sheep Strong in New England.

Interest in sheep raising in the New England States is as strong this year as it was last year, when special impetus was given the industry as a war emergency, reports a representative of the United States Department of Agriculture who recently visited the sheep-extension specialists of the department in Connecticut, New Hampshire, Massachusetts, Maine, and Vermont. In a number of counties arrangements are being made to pool the wool and market it cooperatively. The Sheep Growers' Association of Addison County, Vt., which was formed at the suggestion of the county agent and sheep-extension specialist of the department, agreed in May to pool the wool clip.

As a result a carload of approximately 16,000 pounds of wool will soon be shipped from the county, the first carlot shipment from the community in many years. This shipment will be followed by two others, making a total of approximately 48,000 pounds of wool. Marketing will be handled by a committee of sheep raisers of the association, and arrangements have been made to grade the wool at the shipping point so that each grower will get his individual grade at time of loading. The wool crop from the Government's Morgan Horse Farm, located in the county, where about 200 sheep are kept for experimental purposes, will be included in the pool and marketed through the association.

Field Schools for Citrus Growers.

Field schools for citrus growers will be held by specialists of the United States Department of Agriculture, cooperating with the Florida Experiment Station, in the southern Florida counties where citrus fruits predominate. The meetings will be held in groves selected by county agents. Growers will be brought together and citrus diseases and insects will be discussed in a practical way. Instruction will be given on how, when, and why to spray, what solution to use, and the right methods to employ.

Fewer Wagons Deliver More Milk.

The establishment and management of new milk plants, especially for dealers new in the business, are sometimes accompanied with several discouraging features. On this account the Dairy Division of the United States Department of Agriculture has specialists who give assistance to milk plants in getting established and in methods of operation. The assistance given to one organization is interesting, as typical of the work accomplished.

In 1917 an organization of farmers and small dealers near a Pennsylvania town of about 20,000 inhabitants decided to form a central plant and organized for that purpose. Assistance was given the association in establishing and equipping its plant and also in the management of the business. The plant was constructed in July, 1917. Only about half the producers and dealers went into the organization at first, but now the association handles the greater part of the milk consumed in the town, and nearly all the milk producers in the vicinity are members of the organization. Pasteurized milk was put out as soon as the plant was opened and has given much satisfaction. The business of the plant has constantly increased.

The deliveries of milk are made much more economically than before the central plant was established. Five delivery wagons are now used where formerly 15 were required to deliver a smaller quantity of milk in the same territory. The producers are realizing considerably more for their milk and they have more time to spend with their farm work than when they were operating individually. They have also increased their production considerably since the organization was formed. Approximately an 800-quart trade was handled daily when the plant was started, while the present quantity is about 2,000 quarts. An advertising campaign is planned for the near future and by this means it is expected that the consumption of milk may be further increased. The organization has been a marked financial success.

U. S. Sheep Good Wool Producers.

An unusually good crop of wool was recently clipped from the experimental sheep on the United States Department of Agriculture's Morgan Horse Farm at Middlebury, Vt. Seventeen yearling registered Southdown rams sheared on an average of 8¾ pounds of wool each, and 22 yearling registered ewes of the same breed sheared on an average of 8½ pounds each. This, the department sheep specialists say, is a good performance for this breed. About 200 sheep, 80 of which are pure breds, are maintained on the Morgan Horse Farm for experimental purposes. G. M. Rommel and F. R. Marshall, of the Department of Agriculture, have gone to Du Bois, Idaho, to witness the shearing of 1,500 breeding ewes kept on the United States Sheep Experiment Station located there.

Brushing Teeth Wins Credit Mark.

Healthy childhood usually assures healthy manhood and womanhood. In many localities home demonstration agents from the United States Department of Agriculture and the State agricultural colleges are assisting the school authorities in surveying health of the school children. The results are improved standards of health among children. In Adams, Coos, and Hillsborough Counties, N. H., popular lectures on hygiene and proper food habits have been given this spring by the home demonstration agent. Each child is weighed and measured by the home demonstration agent and a volunteer helper. The record is placed on a card and credit is given for such good habits as "sleeping with window open," "drinking of milk," and "brushing of teeth." When a child is found much underweight or with bad food and living habits, a visit is made to the home. In most instances parents welcome the advice of some one skilled in dietetics.

Billbugs destroy or injure corn, wheat, rye, barley, oats, timothy, blue grass, Bermuda grass, Johnson grass, rice, sugar cane, peanuts, and chufa. The best-known form of injury is corn leaf perforation.

Wages wisely spent and saved bring more for work. Buy W. S. S.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JUNE 11, 1919 No. 45

STUDIES OF LAND ECONOMICS ARE STARTED BY DEPARTMENT

Important New Work Recommended at Recent Conference

Land Resources, Utilization, Values, Settlement, Colonization, Ownership, and Tenancy to Be Dealt with; Field Complex and Varied

As a direct ontgrowth of the reorganization of the Office of Farm Management of the United States Department of Agriculture, new work involving a comprehensive stndy of land economics has been begun. This project, which will be known as the Division of Land Economics, was recommended at a recent meeting in Washington of leading students of agricultural economics, prominent leaders in agricultural development and representatives of various agricultural interests.

Dr. L. C. Gray in Charge

Dr. L. C. Gray, formerly professor of rural economics in George Peabody College for Teachers, has been appointed as economist in charge of the Division of Land Economics. Dr. Gray is regarded as eminently qualified by training and experience to direct the new division. He was born in Missouri in 1881. He has received degrees from William Jewell College and the University of Wisconsin. Dr. Gray devoted his attention for many years to agricultural economics and particularly to the subject of land problems, and is author of a number of articles on various aspects of this subject. During the last eight years he has been a teacher of economics at the University of Wisconsin, the University of Saskatchewan, and George Peabody College for Teachers. He is a member of a number of scientific organizations, including the American Economic Association, the American Farm Economic Association, and the American Association for Agricultural Legislation.

The Division of Land Economics will deal with such problems as land resources, land utilization, land values, land settlement and colonization, land ownership and tenancy, and land policies. Various bureaus of the United States Department of Agriculture and other Government agencies have investigated certain phases of land economics, but data gathered by them have never been assembled, correlated, and appraised from the standpoint of economic utilization of the land. The classification of this material will constitute one of the activities of the new section. This information, when supplemented by intelligent field surveys, will be of immediate and practical value in many ways, said the recommendations of the committee. It will guide land settlement, determine the economically efficient size of farms in different localities, and direct wisely the agricultural energies of the country in the production of foodstuffs and raw materials. Such work will naturally involve a study of land classification, not only in this country but also abroad, which will be of particular value to the agricultural world at large and to American farming interests in particular.

The field of land economics, from an investigational standpoint, is both com-

(*Continued on page 7.*)

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GIVE SHEEP MORE IMPORTANT PLACE

By the use of best methods of breeding, management, and planting the sheep industry where it will flourish best, it should become a more vital part of American national life than it is to-day.

The sheep is inherently an efficient creature which has won for itself a place in the history of civilization. When the Armenian refugees returned to their homes in the Near East these oppressed people were furnished with sheep to help reestablish the country and to enable them to become self-supporting. If sheep are so valuable in the Old World they should be a true inspiration to every American because of the extensive industrial development in this country.

Sheep, which serve mankind, embody democracy. And possibly in these gentle creatures there may be a fulfillment of the promise that the meek shall inherit the earth. In any case they should be given every opportunity to do so.

U. S. DOES NOT LOSE FARMERS BY EMIGRATION TO CANADA

At Least as Many Come to This Country from Dominion

Official Figures Refute Alarmists' Report that Cheap Lands Attract Americans in Great Numbers

The old scare that the cheap lands of Canada are draining the United States of its farm population has been revived recently, particularly since the signing of the armistice. The statement gets printed at one place or another, now and then, that at least a million of America's best farmers have left the United States for Canada during the past 10 years, and a group of alarmists raise the cry that something be done to stop it.

Sees Nothing to Alarm

The United States Department of Agriculture finds nothing alarming in the situation. It does not give credence to the statement that the United States has lost a million farmers, or anything like it, to Canada in 10 years, or at all. On the other hand, it believes that at least as many farmers have come from Canada to the United States as have gone from the United States to Canada. It looks for the cross movement between the two countries to continue, just as a very marked movement among the States themselves is always to be noticed.

Comparable figures as to the number of United States farmers who have gone to Canada and of Canadian farmers who have come to the United States are hard to obtain, but such figures as are available seem to show a fairly even movement back and forth. The statistics of the Bureau of Immigration show the number of people who have gone from the United States to Canada from 1908 to 1918, but do not show what proportion of them were farmers. They do show, however, the number of farmers who went from the United States to all the rest of the world. That includes, of

course, the farmers who seek new lands in Canada, together with the men who came from all European and other countries to the United States, owned or worked on farms for a time, and returned to their native countries.

Few Farmers Leave

The figures seem to show that, while considerable numbers of people have gone to Canada, the bulk of them have not been farmers. The largest exodus from the United States to Canada took place in 1911. The number of persons who left the United States for Canada that year was 49,375. The assumption doubtless has been that practically all these were farmers seeking cheap lands. But the number of farmers who left the United States that year for all places in the world was only 11,560, considerably less than one-fourth the number of people who went from the United States to Canada that year. Nothing like all of that 11,560 went to Canada. There is always a considerable back tide of farmers from the United States to Sweden, Italy, and numerous other countries, and many of these were included in the 1911 figures. Similar figures for the past 10 years follow:

Year ending June 30—	To Canada (all persons).	To all countries (farmers only).
1908	2,629	4,710
1909	30,478	2,970
1910	34,194	3,015
1911	49,373	11,560
1912	33,506	7,807
1913	46,981	6,120
1914	31,818	7,399
1915	23,225	3,435
1916	15,712	2,460
1917	18,994	2,801
1918	27,170	3,556

According to these figures, then, less than 60,000 farmers left the United States for all countries of the globe during the decade when the alarmists claim that 1,000,000 farmers left the United States for Canada alone.

Of these farmers, a majority doubtless did go to Canada, and it appears equally certain that a considerable number of men who had never been farmers in the United States acquired land in Canada. Canadian figures show that 64,124 Americans took up homesteads in Canada between 1906 and 1914.

Many Come to United States

These figures, even if they were uncompensated by any movement from Canada to the United States, fail to justify the belief that the rural districts of the United States are being depopulated by removals to Canada. But there has been compensation. The United States Commissioner General of Immigration has published the following figures on the number of immigrants leaving Canada for the United States:

1914–15	82,215
1915–16	101,551
1916–17	105,399
1917–18	32,452
1918 to Dec. 31, 1918	22,446

Again, the figures do not show what proportion were farmers, but the Canadian Superintendent of Immigration made the statement in 1908 that "about 10,000 farmers per year for the last five years have proceeded from Canada to the United States." That is above the average yearly number of farmers leaving the United States for all countries.

Mosquitoes—What They Do And How to Get Rid of Them

Mosquitoes are man's inveterate tormentors and foes. At the seaside, on the undrained prairies of the West and Northwest, in the far North, by woodland pool and mountain meadow these bloodthirsty brigands in countless myriads waylay the individual on business or pleasure bent.

Swamps, ponds, and marshes, however, are not the only places which breed mosquitoes. A little rain water in an old tin can or undrained roof gutter, if neglected, will supply mosquitoes for a town or city neighborhood, spreading discomfort, causing insomnia, and tempting to profanity.

If mosquitoes were merely a bothersome plague, there would be ample justification for unrelenting warfare against them, but when it is considered that several species scattered over the United States disseminate malaria, rendering many regions of great fertility almost uninhabitable, and that one kind of mosquito found in the South will convey yellow fever, no argument for fighting them is necessary.

Farmers' Bulletin 444 of the United States Department of Agriculture, entitled "Remedies and Preventives against Mosquitoes," which was prepared by Dr. L. O. Howard, Chief of the Bureau of Entomology, was first issued in 1911, but it has been reprinted recently and is available for free distribution to persons and organizations interested in mosquito control or eradication. In it are discussed the importance of antimosquito work, protection from bites, smudges and fumigants, apparatus for catching adult mosquitoes, remedies for mosquito bites, abolition of breeding places, drainage measures, destruction of larvæ by destruction of breeding places, the practical use of natural enemies of mosquitoes, and deterrent trees and plants.

SCARCITY OF ICE CALLS FOR SCRUPULOUS CARE IN DAIRIES

Producers Must Keep Milk Clean, Cold, and Covered

Sterilization of Utensils Is Important Factor, and Department Offers Directions for Making Efficient Equipment Cheaply

Keeping milk fresh and sweet this summer is likely to be more of a problem than usual. Cold is the most important single factor in keeping milk sweet, and ice is usually necessary to accomplish this. In most natural-ice sections of the country, however, there is a marked scarcity of natural ice. Heretofore in regions where 85 per cent of American milk has been produced natural ice has been plentiful and cheap, and has been the principal means by which a perishable food product has been sent long distances to market without spoilage. As a result of the mild winter in many sections little natural ice was harvested, and since in the North the manufacture of artificial ice is confined principally to the larger cities, it is doubtful if this product would be available to milk producers even if the price could be made satisfactory.

Must Observe Three C's

On account of the lack of ice dairymen will be compelled to use scrupulous care in the production and handling of milk and cream, say dairy specialists of the United States Department of Agriculture. It will be necessary to adhere more closely than ever to the three C's in caring for milk—keeping it clean, cold, and covered.

One of the most important factors in reducing the bacterial count in milk, and thus lengthen its keeping qualities, is the sterilization of utensils. Pails, strainers, separators, surface coolers, and shipping cans must be cleaned and sterilized, preferably by steam. Every farmer who can afford it should possess a steam boiler and sterilizer. If he feels that this is too great an expense, there are other sterilizers on the market, cheap but efficient, which will render milk utensils sterile. A satisfactory home-made sterilizer has been developed by the United States Department of Agriculture, and can be made at a cost of about $10. Complete directions for making it may be obtained by addressing the department at Washington, D. C.

Such important factors as clean udder, milking with clean hands, keeping the stables clean, and the use of small-top

pails will lower the bacterial count, and should be carefully observed by all milk producers.

Wells and Springs Help

In cooling milk dairymen should use facilities already existing, such as cold water in wells and springs. When milk is drawn from a cow it has a temperature of about 95° F. In the North well and spring water generally varies in temperature from 50° F. to 60° F. By the use of surface coolers and a tank of cold running water milk can quickly be cooled and held within 2 to 4 degrees of the temperature of the water.

During warm weather it may be necessary to ship or deliver milk twice a day. This would have a tendency to check spoilage, especially of evening milk, whicl is usually more than 12 hours old when sbipped. Milk dealers can do much to prevent spoilage by pasteurizing the milk. Pasteurization not only kills disease bacteria but reduces the bacterial count, and therefore delays spoilage.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended May 24, 1919:

Destroy the Common Barberry. Farmers' Bulletin 1058.

Drying Vegetables and Fruits for Home Use. S. R. S.—Department Circular 3.

How to Take an Appeal to the Secretary of Agriculture from a Licensed Inspector's Grading to Determine the True Grade of Grain Under the United States Grain Standards Act. S. R. A.—Markets 52.

Arable Land in the United States.—Yearbook Separate 771.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

PURCHASING PURE-BRED STOCK

The movement for shipping dairy calves and heifers into Wyoming, fostered by county agents and dairy project leaders of tbe county farm bureaus, is assuming large proportions in several counties. The stock will be purchased by a committee chosen for that purpose. Weston County has orders placed for 200 head; Sheridan County for 50 head; Campbell County, 45 head; and Fremont, Platte, and Big Horn Counties are making substantial orders.

CATTLE BLOATING CAUSED BY EATING STOLEN GREENS

Remedies Recommended When Hungry Animals Stuff Themselves

Danger Comes from Pressure on Heart and Lungs; Instruments and Medicines Found Efficient in Removing Ailment

With the approach of the season at which bloating of cattle frequently occurs, the Bureau of Animal Industry of the United States Department of Agriculture calls attention to the principal causes of the trouble and also the means by which it may be avoided. Many a cow has come to an untimely end because she become dissatisfied with the scanty feed to be gathered from the closely crop-fed pasture, broke down the fence that surrounded a field containing a more luxuriant growth, and stuffed herself with the luscious, stolen greens, until she lost all desire for even another mouthful.

Soon ber troubles begin. Fermentation develops in the mass of corn or clover, and gas forms that fills the first stomach of the cow to its utmost capacity.

How Fermentation Causes Death

The danger to the animal from acute bloating is not that the distended stomach may rupture, for such an accident is almost unknown. The pressure of the gas-distended stomach, however, exerts a dangerous pressure upon the heart and lungs, with the result that animals dying from acute bloating usually die of strangulation through inability to breathe with their compressed lung tissue.

The stock owner should guard against the bloating of his cattle by every precaution at his command. Clover or other green vegetation, if eaten when wet by dew or rain, seem to be especially liable to ferment before leaving the first stomach of the animal that has fed upon them. Eating excessive amounts of middlings or corn meal will also cause bloating. It also occurs in cattle as a result of becoming choked. The principal cause, however, is overeating succulent green forage, such as clover, green corn, or cabbage.

Change Feed Gradually

To prevent bloating in cattle, the animals should be shifted, by easy stages, from dry or scanty feed to abundant and luxuriantly growing fodder. They may be allowed to feed from the good forage for only three-quarters of an hour on the first day they are given access to such grazing. A full hour may be allowed on the second day, and by continued slow steps and gradually lengthened stay in the tempting feed, the danger of loss from bloating will be largely overcome.

But in case the first evidence of a too protracted stay in the heavy growth of forage should be that the owner notices one of his animals with sides distended, and perhaps even lifted above the level of the backbone, he must act quickly. Removal of the gas from the paunch will quickly bring relief. If a veterinarian is within reach he should be summoned at once. If no surgeon is available the owner should immediately attempt to bring relief to his animal.

Trocar and Method of Use

Many cattle owners keep a trocar and canula constantly on hand and thoroughly understand its use. The trocar is a sharp-pointed rod provided with a metallic sheath or canula which leaves the point of the trocar exposed. The spot to be selected for inserting the trocar is a point equally distant from the last rib, the hip bone, and the lateral bony projections from the spine in the region of the loins. Here a small cut about three-fourths of an inch long should be made through the skin with a small knife, and then the trocar with canula attached may be pushed through the cut into the paunch. The trocar is then removed, allowing the gas to escape through the canula. The canula should be retained in place so long as any gas escapes through it. Sometimes several hours are necessary, and the canula should be firmly tied in place. An attendant should remain near the animal, if possible, so long as the canula is in the paunch.

Medicines That Relieve Bloating

If the animal is not distressed by the bloating and the swelling of the body is not great, or when the alarming conditions have been removed by the use of the trocar, it is best to resort to internal medicine to allay the formation of gas. Two ounces of aromatic spirits of ammonia in 2 quarts of cold water should be given every half hour, or half an ounce of chloride of lime dissolved in a pint of tepid water may be given every half hour until the pressure of the bloating has been removed. A dose of purgative medicine is usually beneficial after the bloating has disappeared. For this purpose 1 pound of Glauber's salts will usually prove effective.

Care should be used in the administration of fluid medicines. Take time. Do not hold the cow's head too high. Keeping the animal's head raised so that her nose is slightly higher than the level of her face will allow her to swallow without interference.

STUDIES PRODUCTION COSTS FOR COTTON AND TOBACCO

Department Begins Work in Cooperation with States

Twelve Cotton Areas Selected in Alabama, Georgia, Texas, and South Carolina; Tobacco Work in Kentucky

Following recommendations of a committee on cost of production studies, the Office of Farm Management, United States Department of Agriculture, has started investigations of factors affecting the cost of producing cotton and tobacco.

The studies with cotton will emphasize the amount and hours of farm labor involved in producing the crop, the amounts of seed and fertilizer used, as well as the cash costs, such as ginning, and the relation of cotton growing to other enterprises of the southern farm.

Where Cotton Will Be Studied

Cotton investigations will be conducted in Alabama, Georgia, Texas, and South Carolina, in each of which three representative areas have been selected by the State experiment stations, with which the work is in cooperation.

In Georgia the work is in cooperation with Prof. John Fain; in Texas, with Prof. H. M. Elliott, head of the Farm Economics Department; in Alabama, with Director Duggar, of the Alabama Experiment Station; and in South Carolina, with Director Barre of the South Carolina Experiment Station and Extension Director Watkins.

The tobacco investigations are centralized in the Burley section of Kentucky, and are in cooperation with the Kentucky Experiment Station. Seventy-five tobacco farms in each of two representative Burley districts are keeping daily labor reports on the cost of producing tobacco. Director T. P. Cooper, of the Kentucky Experiment Station, is the local official representing the Blue Grass State, while Prof. Nicholls, of the Kentucky Agricultural College, has direct charge of the field work. The Office of Farm Management intends to extend the tobacco investigations as soon as its new organization is perfected.

LESSONS ON POTATOES FOR ELEMENTARY RURAL SCHOOLS

A guide for teachers and pupils of elementary rural schools in the study of potatoes has been published by the United States Department of Agriculture as Bulletin 784, "Lessons on Potatoes for Elementary Rural Schools." The potato is a good subject for study, says the bulletin, because of its importance as food, wide range of growing territory, and its possibilities for home project work.

The bulletin contains 12 lessons, including the selection of seed potatoes in the field; harvesting and grading; marketing; winter storage; judging; tuber and plant structure; place of potatoes in the rotation; soils—kind, preparation, and fertilizers; planting and seed treatment; cultivation; insect pests and diseases; and uses as food. With each lesson are given the sources of material which may be studied with the subject under discussion, illustrative material that will help in the presentation, class exercises, and practical exercises.

Have Specimens at Hand

As potatoes may be secured at any time of the year, there is no excuse, says the bulletin, for attempting to study them without having at hand specimens which represent good varieties grown in the district. The potato plant in the field should be studied during the different stages of development. Especially should the relation of the new tubers to the seed tuber and the root system of the plant be noted. If no plants are available, a diagram showing the plant as a whole will be useful.

Charts showing the composition of the potato and its relative food values should also be made. Pictures clipped from bulletins, showing types of potatoes, may be mounted for class use. The teacher should keep in mind always the value of illustrative material in arousing interest and visualizing the study of the subject.

Great Future for Potato

In referring to the importance of the potato, the bulletin says it is one of the most widely cultivated of the agricultural plants, and next to Indian corn is the most important contribution of America to the food supply of the world. Probably no crop except rice is eaten by a larger number of people. In the more thickly populated regions of northern Europe the potato is now the most important of human foods, furnishing about 25 per cent of the food of the continental and English peoples. Only the oriental peoples exist without it.

Not only are the tubers used for food, but they have important industrial uses. As American population increases, the potato will become more and more important in this country, there being no other crop which will give such a large yield of food suitable for man under such varying conditions.

TEST CALVES FOR "T. B."

Calves may become infected with tuberculosis at an early age, and any effort to eradicate this dreaded disease from the herd should not overlook the younger animals. Diseased stock may undoubtedly transmit the ailment to calves by association with them in the same stable or feed lot, and even by contact through a fence which divides the younger from the older animals, say United States Department of Agriculture specialists in the Bureau of Animal Industry.

The youngest age at which department veterinarians recommend testing calves for tuberculosis is six months. In special instances, however, numbers of animals under this age have been satisfactorily tested with tuberculin. The present regulations of the bureau prescribe a dose of 2 cubic centimeters of tuberculin for calves ranging from 6 months to 1 year of age.

Lilly, Who Hunts Lions for a Living; One of U. S. Hunters

Thousands court notoriety, while a select minority prefer to remain unnoticed in the darkened background but have fame thrust upon them. The latter class holds Benjamin V. Lilly, champion lion hunter.

Born of good and prosperous family, Lilly, while still in his teens, responded to the call of the wild and became a free-lance hunter. Loaded with a 60-pound pack, he broke his way through the Louisiana canebrakes in search of game—no varieties or species barred, from bears to wildcats. Adeptness with firearms and courage were his resources. As a rule, every time his rifle cracked some animal dropped or flopped its way into the underbrush badly wounded, and for the last half century Lilly's rifle has been spitting fire and his fame as a "sure shot" has spread through Louisiana, Texas, Arizona, New Mexico, and northern Mexico.

Ben Lilly was one of the guides who accompanied the late Col. Roosevelt in his hunt through the Louisiana canebrakes at the time when the term "Teddy Bear" attained popularity. Subsequently Lilly collected specimens of wild animals for the Biological Survey of the United States Department of Agriculture, and at various times during the last six years he has been in the service of this bureau as a professional hunter. Although he now is 65 years old, he is as active, as daring, and as certain in "drawing a

bead" as any of his associates, some of whom are young enough to be his grandchildren. Lilly is a giant for work, and even at present is able daily to tire out two or three sets of dogs in rounding up some range varmint. His circle of friends among the western ranchers is extensive and appreciative.

Much Saved for Stockmen

On the basis that the wolf kills $1,000 worth of live stock a year, the bear and mountain lion $500 each of live stock, and the coyote and bobcat each do $50 worth of damage, Lilly has saved the western stockmen enormous amounts. In the last six years he has killed 167 mountain lions and 65 bears, including several grizzlies. Mr. Lilly is unassuming and disinclined to talk about his experiences, and on this account no accurate record is available concerning his total number of scalps.

Mr. Lilly attributes his physical prowess and activity to his out-of-door life and to his abstemious nature, as he has never used tobacco or intoxicants of any description. He furthermore has followed a fixed rule of never hunting on Sunday, and according to rumor in sections of the country over which he has hunted, this resolution has given many wild animals a new lease of life, as they were able to make a "get-away" on the Sabbath. One interesting story is told of how Lilly followed a bear through three States before he finally cornered the animal and was able to kill him.

His hounds once so enraged a mountain lion that she finally attacked Lilly, who was unarmed except for a 4-inch pocket knife. With this fragile weapon he killed the beast after a strenuous encounter.

Knows Range Well

Mr. Lilly knows the range country so well and is so familiar with the routes, habits, and haunts of the lions that occasionally he kills as many as three lions in half an hour. He knows just where to set traps in the canyons and coves, while he is able to pick out the most desirable spots to lie in ambush awaiting the approach of prowling beasts.

Uncle Sam employs approximately 300 professional trappers and hunters to assist western stockmen in exterminating wild predatory animals from the range country. These hunters have killed 70,713 predatory animals in the last three years, which has resulted in a direct saving estimated at nearly $5,500,000 a year to the stockmen of the Rocky Mountain section. The total kill consisted of 60,473 coyotes, 8,094 bobcats, 1,829 wolves, 201 mountain lions, and 137 bears. The pelts of the animals killed were sold for approximately $100,000, which, of course, is of considerable aid to the Government in financing the work. In addition to animals killed by trapping and shooting, great numbers of coyotes have been killed by the carefully organized poisoning campaigns conducted by the Biological Survey.

Earn, but spend a little less. Buy War-Savings Stamps.

Juice of the Logan Blackberry Makes Healthful, Cooling, Invigorating Drink

Soft drinks—"soft" in slang meaning "easy to get"—may attain new importance after July 1. Soft drinks made from fruit juices doubtless will attract many new devotees, who will find that beverages made from pure fruit juices are decidedly healthful, cooling, refreshing, and invigorating, says the United States Department of Agriculture.

Because of its pleasant flavor, the juice of the Logan blackberry, commonly known as the loganberry, is very popular as a beverage. The berry is also used in making jams, jellies, and soda-fountain sirups. Methods of extracting and treating the juice are constantly being bettered. This industry, already a large one, is growing rapidly.

Making of Logan Blackberry Juice

The Department of Agriculture, through its Bureau of Chemistry, has done much investigational and experimental work on the juice from the Logan blackberry, or loganberry. Results are reported in Department Bulletin 773, and information relative to the culture of this fruit is contained in Farmers' Bulletin 998.

The berries are crushed as soon after picking as possible to prevent any molding. From the crushers the pulp is put into press cloths and piled in the presses. Heavy pressure extracts the juice, leaving the pulp in a more or less dry cake. The juice is then sterilized and placed in cans for storage.

Uniformity Secured by Blending

Because of variations in the flavor and character of the juice at different periods of the season, all juices are blended before being bottled to secure a uniform product for the market.

Blending is done by "racking off" the cans, filtering the juice, and then sending it to the blending and mixing tanks. From the tanks it goes to the bottling machine. After bottling the juice is pasteurized by heating it to from 165° to 180° F. for periods varying with the size of the bottles. It is then labeled for the market.

The Juice as a Beverage

Loganberry juice is naturally so sour that it is necessary both to dilute and to sweeten it to obtain a drinkable article. The berry has a characteristic flavor. It somewhat resembles that of the raspberry, both red and black, but is more acid than either.

Adding enough sugar to reduce sufficiently the tartness of the juice makes a product too sirupy to drink, unless it is diluted at the same time. The sirup prepared for soda-fountain use is not diluted until sold over the counter. Some of the sweetened but undiluted juices have been labeled by manufacturers as "concentrated." This description is unwarranted, as the juices have not been concentrated or evaporated, but simply sweetened. They should be properly labeled as loganberry sirups.

Purpose and Results of Investigation

The object of some of the investigational work of the Department of Agriculture was to establish methods for the detection of dilution common in commercial products of the Logan blackberry; and to set analytical standards for such products.

The juices from berries grown in Washington and Oregon differ markedly in composition from those produced in California. Those of the northern section have a higher acid and a lower ash content than California juices. So far it has been impossible to determine accurately the amount of water added to the juices by the manufacturers. Its presence can be detected, however, and the amount roughly approximated.

PURCHASE PURE-BRED GUERNSEYS

A committee from the Elkhart County (Ind.) Guernsey Breeders' Association, which is composed of farmers belonging to the county farm bureau, spent four days in Wisconsin, where they purchased 23 head of pure-bred cattle, at a cost of $6,200. The cattle will be distributed to 15 members of the association.

Harnessing Streams for Home Power Furnishes Electricity for Farm Use

Many farms are endowed with natural water-power facilities which may be yoked and bridled to furnish energy for operation of farm lighting and power plants, say specialists of the Division of Rural Engineering, United States Department of Agriculture. Electricity lightens the farmer's work and relieves household tasks of much drudgery. As farm conveniences which increase the profits and pleasures of country life, lighting and power systems have many ardent champions. The cost of such plants operated by water power is well within the reach of thousands of farm owners, the Federal specialists say.

The nucleus around which the power plant centers is a stream of adequate velocity and volume to furnish the requisite energy for the generation of power. A stream 10 feet wide with an average depth of 2 feet and flowing at the rate of 2 feet a second under a head of 5 feet is capable of supplying more than 10 horsepower. This is sufficient to light the average farmstead and have enough current left over to operate motors for many other farm needs. If the head could be made 10 feet instead of 5 feet the horsepower could be doubled. Or, if the stream were twice as wide or twice as deep with but a 5-foot head, 20 instead of 10 horsepower could be obtained. It is advisable to install a plant larger than the needs of the moment seem to require. An additional horsepower or two will not greatly change the first cost while use will always be found for any excess.

Power a Farm Needs

The farmer who wishes to install an electric plant should take inventory of his power requirements. The unit of electrical power is the "watt." The estimate of farm lighting and power requirements should always be computed in terms of watts, 746 watts being equivalent to 1 horsepower. The average 8 or 9 room farmhouse needs lighting facilities which will aggregate about 1,000 watts, while another 1,000 watts of power are usually necessary to light the horse barn, cow barn, hay barn, pig house, chicken house, watering trough, barnyard entrance, and front gate. As a rule not over half the lights are in use at one time, but it is always desirable to figure the plant as capable of supplying the maximum demand. Small motors of from one-twelfth to 1 horsepower call for from 100 to 932 watts of power, while a small hot-water boiler heater needs 1,500 watts, a coffee percolator 400 watts, a 6-inch disk heater 600 watts, a toaster 400 watts, a 9-pound flatiron 650 watts, a 3-pound flatiron 350 watts, an 8-inch electric fan 20 watts, and a 16-inch electric fan 70 watts.

All the power machinery probably never will be used simultaneously, but the capacity of the power plant should at least exceed the requirements of the machine having the maximum horsepower rating. As an aid to computing the power which must be available for the operation of the average electric plant the following figures of approximate horsepower necessary to run the accompanying machines is given: Thrashing machines, 30; ensilage cutter, 10; feed grinder, 5; wood saw and hay press, each, 3; water pump, 1½ to 3½; ice-cream freezer, churn, corn sheller, cream separator, and milking machine, each, ½; washing machine and grindstone, each, ¼.

Figuring Water Supply

After ascertaining the requirements of the lighting and power plant in total horsepower the next step, which is rather technical, is to determine the volume of water available, generally based on the quantity flowing during the period of low water if the maximum possibilities of the stream under the least favorable conditions are to be determined, and also the "head" or "fall" which this water may have or be made to have. It is important that the amount of water flowing in the stream be determined fairly accurate. One method, known as the cross-section and velocity method, involves the selection of two points along the stream, which should be about 50 feet apart in slow streams and from 100 to 200 feet in swift ones. It is then necessary to set two range poles in the ground, one on each side of the stream, at the upper point, and two similar poles at the lower point, so that an imaginary line connecting the poles on the opposite banks will cut the stream at right angles to its direction of flow. To obtain the velocity of the stream use a float, such as a round piece of wood about 5 inches in diameter and 6 inches long, or, if the depth of the water is sufficient, a spherical float, such as an orange, which is easy to see in the stream. This float is thrown into the stream above the upper station, so that an observer can note the time when it passes this point, while a second observer can take the time when the object passes the second station, and in this way the time which it took the float to travel a fixed distance can be determined. If the distance, expressed in feet, be divided by the time, expressed in seconds, the surface velocity in the path of the float in feet per second will be obtained.

Completing the Calculation

The next step is to estimate the stream cross section at the range pole, this being accomplished by stretching across the stream a measuring tape or cord with tags tied at, for instance, 2-foot intervals, the first tag on each side being 1 foot from the edge of the water, so that the sum of these two will equal the distance between any two of the other tags. It is then necessary to measure the depth of the water in feet and tenths of a foot at each of these tags, add one and one-half times the depth taken at the end tags to two times the depths at all intermediate tags, and the sum will give, in square feet, the cross-sectional area of the stream at this place. This should be done for the sections at both the upper and lower range pole lines. The values for each, added and divided by two, will give an average working value for the area. Having obtained a cross section of the stream in square feet, as well as the average or mean velocity of the stream in feet per second, the product of these two multiplied by 60 will give the quantity of water in cubic feet that the stream furnishes a minute. Another system of determining the stream flow consists in the weir method, which is discussed in a recent United States Department of Agriculture publication, "Electric Light and Power from Small Streams."

Storing Water for Power

Occasionally the measurement of the stream may show a flow of water inadequate for the operation of a generator, running continuously, whereas if the water were impounded for 18 hours or so and then this stored water used with the normal flow for the other six hours of the day sufficient horsepower could be generated to supply current for evening lighting, as well as some small power needs. While such a plant may not afford all necessary electric current supply, in many instances it would appeal as an improvement well worth considering. In some situations water may be so scarce that it will have to be stored for three or four days to get enough power to charge a storage battery for a few farm lights to carry over until sufficient water has been collected to recharge the battery. Even such an arrangement offers decided advantages over kerosene lamps.

Great Increase in Wheat Stocks Shown in Survey for May 1; Other Commodities

Commercial stocks of wheat reported in a survey made by the Department of Agriculture for May 1, 1919, amounted to 98,873,147 bushels. These holdings, reported by 9,857 firms—elevators, warehouses, grain mills, and wholesale dealers—were nearly three times as large as the stocks held by the same firms a year earlier, the actual percentage being 289.7 per cent of the 1918 stocks. The figures refer to stocks actually reported and do not represent the total commercial stocks of the country nor do they include stocks on farms.

Visible Supply Figures Compared

The commercial visible supply figures, as published by the Chicago Board of Trade for May 3, 1919, show 49,502,000 bushels of wheat, as against 2,777,000 bushels a year earlier. The corresponding Bradstreet figures show 55,247,000 bushels, as against 7,572,000 for 1918. As compared with the same date last year, these figures, as well as those obtained by the more extensive survey, show a very great relative increase in commercial stocks of wheat on May 1, 1919.

Other Cereals, Flour, and Corn Meal

The commercial stocks of other cereals reported for May 1, 1919, according to the department's statement, were as follows: Corn, 20,000,316 bushels; oats, 50,787,249 bushels; barley, 25,060,638 bushels; rye, 21,736,760 bushels. These stocks represent the following percentages of the corresponding stocks on May 1, 1918: Corn, 39 per cent; oats, 93.6 per cent; barley, 174.1 per cent; rye, 418.2 per cent.

The commercial stocks of flour and corn meal, as reported for the survey, were as follows: Wheat flour, white, 6,008,529 barrels; whole-wheat and graham flour, 45,868 barrels; barley flour, 24,991 barrels; rye flour, 200,196 barrels; corn flour, 10,588,306 pounds; corn meal, 49,763,019 pounds; buckwheat flour, 22,526,580 pounds; mixed flour, 45,697,035 pounds. These stocks represent the following percentages of the stocks on hand a year ago: Wheat flour, white, 118.9 per cent; whole-wheat and graham flour, 44.7 per cent; barley flour, 3.4 per cent; rye flour, 41.6 per cent; corn flour, 32.1 per cent; corn meal, 37.6 per cent; buckwheat flour, 379.4 per cent; mixed flour, 185.4 per cent.

Stocks of Selected Commodities

Elevators, warehouses, and wholesale dealers reported stocks of dry edible beans amounting to 5,862,515 bushels, while wholesale grocers and warehouses reported the following commodities in the quantities indicated: Cleaned rice, 103,833,586 pounds; rolled oats, 45,578,214 pounds; canned salmon, 115,543,781 pounds; canned tomatoes, 228,197,071 pounds; canned corn, 98,843,065 pounds; sugar, 192,395,926 pounds. These stocks represent the following percentages of the corresponding stocks on hand May 1, 1918: Beans, 130.1 per cent; rice, 125 per cent; rolled oats, 111.8 per cent; canned salmon, 126.7 per cent; canned tomatoes, 199.1 per cent; canned corn, 165.9 per cent; sugar, 84.7 per cent.

Stocks of condensed and evaporated milk were reported by condensaries, cold storages, warehouses, and wholesale grocers, as follows: Condensed milk, 33,464,078 pounds; evaporated milk, 90,752,523 pounds. The holdings of condensed milk reported for May 1, 1919, represented 86.5 per cent of the stocks held by the same firm a year earlier, while the holdings of evaporated milk represented 85.7 per cent of the May 1, 1918, stock.

STUDIES OF LAND ECONOMICS ARE STARTED BY DEPARTMENT

(Continued from page 1.)

plex and varied. For example, it will be of great value to ascertain the economic causes that prevent areas of land suitable for agriculture from being used. Furthermore, considerable areas of land in this and other countries are withheld from use for various reasons, such as aggregation of large holdings, inadequate capital for improvement, insufficient facilities for transporting and marketing agricultural products, inertia of population, and speculation. Similarly, there are other large areas where the use of lands for farming is wholly inadequate and wasteful because of the size of farms and land holdings, absenteeism, and forms of tenancy which provide insufficient motives for careful farming, and lack of provision for suitable improvements and conservation of soil.

To Investigate Tenancy Increase

From another standpoint the rapid increase of tenancy in certain regions of the United States has created great interest in the cause of this movement and its ultimate significance. Although many causes have been suggested, comparatively little is known as to their relative importance. Careful investigations are contemplated with a view of assessing these causes at their relative weight. Similarly, it is of vital importance that the question of the good and evil of tenancy as a method of holding land should receive adequate consideration. To some degree the evils of tenancy have been exaggerated and the good minimized, because it has frequently assumed such forms in this country as inevitably result in conditions unfavorable to good farming and an unwholesome rural civilization. Only careful investigation can show the facts which will indicate the relative advantages and disadvantages of the various forms of tenancy now in use. If some tenancy is not only inevitable, but probably desirable, the Nation should be in a position to select those forms which are most wholesome in their consequences.

The consensus of opinion among students of the subject is that a large percentage of farmers should own the land they live upon and cultivate. Hence, it is desirable that the investigations conducted by the Division of Land Economics should be directed so as to determine what area of land will provide an economic holding under the varied conditions which prevail in different regions and what methods should be employed to facilitate the acquisition of farm land by laborers, tenants, and others actively connected with farming, not only in regions now undeveloped, but also in sections at present devoted to farming.

Since large areas of land are still owned by the Federal, State, and other governments, it is desirable that the Department of Agriculture should study the problem of the most economical methods of using these areas while under public ownership. Facts are needed which will show what areas should be placed in the hands of private holders and by what methods the change of ownership may be most successfully realized, as well as what areas should be retained in public ownership. There is little question but that the policies employed in the past have frequently resulted in the sale of land in holdings which are uneconomical in size and without adequate safeguards to prevent the land being gathered into unduly large holdings or being used for speculation.

It is not necessary to build expensive poultry houses, but they should be serviceable, fairly roomy, well lighted, and well ventilated without drafts.

Weekly News Letter

Published every Wednesday by the
Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

ON WATCH FOR ARMY WORM DESPITE FAVORABLE REPORTS

No new appearance of the army worm has been reported to the United States Department of Agriculture, and with the strenuous efforts being put forth in Texas to prevent its spread, there is hope that it may be confined to the vicinity of Dallas and Forth Worth, where the pest has manifested itself this year and has caused considerable damage to wheat and oats.

Farmers in all States east of the Rocky Mountains, however, are urged by the department to remain on the watch for the insect and to report its discovery immediately to State or Federal agricultural officials.

The army worm is simply a cutworm that has developed migratory habits, explains Dr. L. O. Howard, chief of the Department's Bureau of Entomology. In some years its reproduction may be small and all of the worms find sufficient food in the immediate neighborhood. In other years conditions bring about their reproduction in enormous numbers, and when that happens they manifest the characteristic that gives them their popular name. They move forward in enormous numbers in search of food—normally "marching" during the day and resting and eating at night, but sometimes eating voraciously during the day, and sometimes eating each other when foraging proves vain.

This year the worms appeared in enormous numbers in the vicinity of Dallas and Fort Worth, caused great damage, and soon they were "on the move" for fresh feeding grounds. Alarms were sent all over the wheat regions of Texas and farmers prepared to fight the invaders by means of poisons and trenches into which the army worms would fall.

FIRST GOVERNMENT REPORT ON WOOL PRICES ISSUED

The first Government wool market report was recently issued by the Bureau of Markets, United States Department of Agriculture. It covers quotations on bright domestic fleece wool in all grades, also territory, California, and Texas wools. Prices, based on actual sales in Philadelphia and Boston, are quoted on grease wool, showing the range and estimated shrinkage.

Fine Delaine grease wool is selling at 63 to 68 cents; one-half blood staple territory, 52 to 63 cents; California choice, 12 months, 49 to 54 cents; and Texas fine, 12 months, 33 to 48 cents.

Government wool auction sales on May 23 were well attended, with interest of dealers and manufacturers centered on fine wools, medium and low wools receiving slightly more attention than at previous sales.

Special cables to the Bureau of Markets state that the second series of Government colonial wool auctions at London show a rise of 5 per cent for finer grades, compared with closing value at April sales. Medium descrlptions were unchanged, while coarser wools ruled slightly lower.

The detailed wool market price report and succeeding monthly or semimonthly issues will be sent to anyone interested upon application to the Bureau of Markets, Department of Agriculture, Washington, D. C.

FOREIGN CROPS REPORTED; WHEAT IN INDIA REDUCED

A cablegram to the Bureau of Crop Estimates, United States Department of Agriculture, from the International Institute of Agriculture, Rome, Italy, gives the 1919 production of wheat in India at 278,023,200 bushels, or 73.2 per cent of the 1918 crop, and 78.9 per cent of the five-year average, 1913–1917.

The area of crops sown in Spain, spring of 1919, is given as 11,318,000 acres for wheat, or 110.6 per cent, compared with last year; 2,493,000 acres for rye, or 137.1 per cent, compared with last year; 5,728,000 acres for barley or 136.1 per cent ,compared with last year.

The area of crops sown in Greece, spring of 1919, is given as 937,000 acres for wheat, 59,000 for rye, 299,000 for barley, 156,000 for oats.

The area of wheat sown in India, 1918–19 crop, is given as 23,416,000 acres, or 66 per cent of last year.

The condition of crops on the 1st of May is given as good for Ireland, average for Germany and Italy, medium for Alsace and Luxemburg, and bad for Greece.

AVENUE OF TREES FORMS FALLEN HEROES' MEMORIAL

The planting of trees as memorials to soldiers who gave their lives in the war has been adopted in other countries as well as the United States, where the plan is advocated by the Secretary of Agriculture.

The principal of the Ardlethan public school, New South Wales, has written to the Australian Forestry Journal that in August, 1917, an avenue was laid out in the school playground and a tree was planted for each Ardlethan soldier, an oxidized copper plate being attached to each tree with a record of the name, rank, and community of each man. At the entrance to the playground trees were planted for soldiers who had fallen; then came those in honor of former pupils of the school, and finally those for others who enlisted locally. In this way an avenue of 125 trees has been made to form a complete roll of honor which will stand for centuries. The ground was prepared by the school pupils, but the trees were planted by relatives or friends of the soldiers honored.

The Queensland correspondent of the Australasian recently recorded the planting of 30,000 trees in Anzac Park at the expense of a public-spirited citizen, 16,000 of them being in memory of soldiers who had died in the war.

Grading potatoes for market increases the possibilities for sales and raises the price received. Keep the culls on the farm and save the cost of hauling.

You Practised Patriotic Thrift During the War. Are You Going to Practice Personal Thrift in Peace Times? Thrift requires Determination, but pays Dividends.

Cattle Must Be Tested for Tuberculosis Before Being Shipped Out of Any State

Beginning July 1, 1919, the shipment of cattle interstate without having them properly tuberculin tested will be prohibited—with a few exceptions—by a regulation issued by the Secretary of Agriculture. The inforcement of this new regulation will, it is believed, be of great assistance in preventing the further spread of tuberculosis among live stock, and having the work practically under State and Federal supervision at all times will serve to bring about uniformity.

The Department of Agriculture, through its Bureau of Animal Industry, is now actively cooperating with the State live stock sanitary officials and cattle owners of 42 States in the eradication of tuberculosis from live stock.

Recent legislation in several of the States has made it possible to proceed with the work where heretofore it has been impossible to do so. Federal funds available for the work are insufficient to meet present demands, and now that the cattle owners are finding the work to be of such advantage and importance the demands will increase rapidly.

Most activities are in the "accredited-herd" work with the owners and breeders of pure-bred herds of cattle who wish to free their herds from tuberculosis and have them placed on the list as "accredited."

Full Cooperation Essential

Some "area work" is being conducted. Under this plan a community or county or some other unit decides to have all the cattle in the area tuberculin tested with a view of completely eradicating the disease as soon as possible. In order that the "area work" may be successfully carried on, the fullest cooperation of the cattle owners in the territory must be obtained, and any attempt to proceed with the work without the good will and hearty cooperation of the people will fail.

Appropriations by the States for the coming fiscal year for live stock tuberculosis eradication aggregate about $2,000,000. Part of this sum will be used to indemnify partially the owners of cattle found to be tuberculous. Most of the States now have laws permitting the payment of indemnity and the Federal department also pays some indemnity when funds are available. With the exception of valuable breeding animals, it is found most advisable to consign the tuberculous cattle for slaughter and thereby dispose of them to the best advantage. In the greater portion of "reactors" the disease is found to exist to but a slight extent, making the meat fit for food—thereby causing a great saving. The carcasses of such cattle, after being passed for food by trained inspectors, usually bring about the market price, which sum, deducted from the appraised value of the live animal, leaves the amount of loss. Under the more recent laws, this loss is divided between the owner, the State, and the United States—each standing one-third—except that in most cases the State is limited in the amount that it can pay and the United States is always limited to the payment of $50 for a pure-bred animal and $25 for a grade.

Healthy Cattle Worth More

Owners realize that these slightly diseased cattle may at any time become a source of danger to the healthy animals of the herd and that they themselves may break down from the disease and die or become of little or no value. The value of healthy cattle in any herd, after the tuberculous ones are taken out, always increases, and it is a source of great satisfaction to the owner that he has a healthy herd or that he is doing everything in his power to make it so. Cattle from accredited herds are commanding increased prices over those that are not, and those from herds that are in the process of being accredited are also being sold at advanced prices.

The second list of accredited herds and those that have successfully passed one tuberculin test in preparation for the accredited list is expected to be ready for distribution July 1. Requests now received indicate that 100,000 copies will be required to meet demands. This pamphlet of about 100 pages will contain the names and addresses of about 4,000 cattle owners, representing about 91,000 cattle, whose herds have passed one or more successful official tuberculin tests applied under the cooperative plan for accrediting herds of tuberculosis-free cattle.

Up to April 1, 1919, the total number of herds under supervision for the eradication of tuberculosis was about 9,800, containing about 200,000 cattle; and since that time a large number have been added to the list.

These cattle owners have realized the great importance of trying to maintain a healthy herd, and have pledged themselves to cooperate with the State and Federal officials in every possible way to free their cattle from the disease.

Experience covering a period of several years has proved beyond a doubt that a herd can be freed of tuberculosis and kept free, and that the procedure is entirely practical and within the power of a large percentage of cattle owners. But to accomplish the desired results everyone connected with the project must do his best to follow plans, in every detail, that will bring it about. The fullest cooperation on the part of the herd owner is very important. A herd of cattle may be declared to be free from tuberculosis by the officials in charge of the work, and then, through some oversight or by carelessness, diseased animals may be added to the herd or members of the herd may be allowed to associate with tuberculous cattle. In such case, infection may again be introduced and cause further losses and much trouble.

Since the inauguration of cooperative tuberculosis eradication work the number of cattle tested with tuberculin each month has increased. A total of 252,114 cattle were tested from July 1, 1918, to May 1, 1919. Minnesota leads among the Northern States with about 25,000. Virginia leads the Southern States with 15,796—followed closely by Alabama with 15,694.

Poultry Points in Pictures Make a Primer for Beginners

Telling the essential points in poultry raising chiefly by pictures is accomplished by the "Illustrated Poultry Primer," a new Farmers' Bulletin (No. 1040) just issued by the United States Department of Agriculture.

The contents include descriptions of the more popular breeds, and practical helps in selecting, hatching, feeding, housing, and marketing fowls, and in controlling pests and diseases. The bulletin contains 28 pages and 53 pictures, covering the entire range of subjects.

The department's poultry specialists urge the beginner to keep only one breed or variety of fowls, and insist that the male bird at the head of the flock should be standard bred. A bird of that class at the head of even a mongrel flock will improve the quality greatly in a few generations, with resulting uniformity and increased value of the products.

One of the most valuable features of the bulletin is the description of feeding for egg production. A graphic illustration shows the number of eggs a good hen will produce, in proportion to the feed she eats, when the ration is properly mixed. Practical devices, such as feeding hoppers and trap nests, are discussed and illustrated, and other points of interest are presented in a way that the reader should not easily forget.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

Working to Market Hogs Early From Florida for Good Prices

Although Florida has long been famed for its early fruits and vegetables, still another Florida product is to be added to the list which reaches the market before the northern output is ready. The last addition is Florida pigs.

A group of farmers of Madison County, Fla., recently visited a packing plant in a Georgia city and inspected a number of good farms near by. This trip was worked up by the local county agent, the object being to impress not only the growing of better stock but to give them an idea of better feeds and pastures and the best season of the year to market hogs.

One result of this trip, according to a report of the district agent, is that the farmers are planning to feed and market a large part of their hogs early in the season—from July to October—when the market is at its highest. With Florida's opportunity of year-round pasture crops, says the report, there is no reason why No. 1 hogs should not be put on the market when they are scarcest and bringing best prices. Oats, rye, and rape will furnish grazing for early fall and winter. Cowpeas and sorghum can be planted in March and will be ready for grazing when the winter crops have been depleted. These crops can be followed with velvet beans, early corn, and Spanish peanuts, all in the same field. This combination can be hogged down, as well as plantings of cowpeas, thus saving the cost of harvesting. With the necessary addition of peanut meal and corn, fed in a self-feeder, the heavy hogs that will weigh 165 pounds or more, and that will bring top prices, can be put on the market between July and October.

CLOVER INCREASES CROP YIELDS

Clover demonstrations started several years ago by the county agent in McCormick County, S. C., are beginning to show remarkable results. Farmers in neighborhoods where the demonstrations are being conducted are becoming interested in this legume as a soil builder. On one demonstration farm, when the work was begun in 1914, the average yield of corn was 10 bushels an acre and 500 pounds of cotton an acre. The next year corn which followed clover made 15 bushels to the acre, and during the following year cotton which followed clover produced 1,200 pounds an acre. Last year corn which followed clover made 40 bushels an acre and cotton 1,600 pounds an acre.

MANY JOIN FARM BUREAUS DURING CAMPAIGN IN IOWA

Reports from farm bureaus in Iowa show that many organizations recently have conducted membership drives with excellent results. Approximately 80 per cent of all farmers solicited became members, according to reports from county agents. Results of the work which the farm bureaus have done in the past and the opportunity for handling the big agricultural problem which is opened up through the federation of farm bureaus is now generally known in the State.

The officers and directors of the Polk County association organized committees and made a county canvass which brought in more than 200 new members, so that now 700 farmers, or approximately one-third of those in the county, are directly behind the farm-bureau movement.

Benton County organized a war emergency farm bureau in the fall of 1917, but in the short time it has been in operation such big results have been accomplished that the members voted unanimously to continue it on a permanent basis. A short membership campaign this spring brought in 428 new members, and the leaders of this drive say that before the season is over the membership will reach 1,000.

COVER CROPS AS SOIL BUILDERS

To build up thin soil is a problem which demands the attention of the county agent in Lexington County, S. C. Three farmers in one community are cooperating with him by growing cover crops, and are conducting demonstrations extending over several years. One of these men, who has been working on the subject for five years, has followed this rotation on one piece of land:

Corn and velvet beans or cowpeas, followed by small grain, followed by cowpeas after grain has been harvested, then crimson clover, or hairy vetch and rye, followed by cotton or grain.

This rotation has been kept up until the land, which was very thin, is now producing 1½ bales of cotton an acre.

Farmer Uses Agent's Method, Defeats Grasshopper Army

Millions of grasshoppers infested the fields of Morris County, N. J., last August.

George Fisk, of Morristown, had a fine second crop of clover and, adjoining it, a field recently seeded to alfalfa. The latter had germinated well and the young plants had made from 1 to 2 inches of growth.

After the red clover was cut and made into hay Mr. Fisk noted that the field had been infested by hordes of grasshoppers, which were moving on into the alfalfa and eating the field bare of plants. He called at the office of the county agent, H. S. Lippincott, and told him of the invasion. He was advised to dust a strip across the field in advance of the grasshoppers with a mixture of air-slaked lime and Paris green. He followed the advice and stopped the grasshoppers at a line plainly marked by the end of the damage done by the insects.

A number of newly seeded alfalfa fields on other farms were also attacked, but the "hoppers" were effectively checked by the poison bait recommended by the agent. The bait used was made up as follows:

One pound of white arsenic was mixed thoroughly into a bushel of sawdust; then 12 ounces of salt and one-half cup of molasses were stirred into a gallon of water, and the solution was used in wet the sawdust.

Such materials as bran and ground alfalfa hay can be used as the basis of the bait instead of sawdust.

ORGANIZE TO BANISH SCRUBS

Carrying out plans which the county agent has had on foot for some time, a meeting of farmers and business men, recently held in Greenwood County, S. C., to push the campaign against scrub sires, left no doubt that Greenwood County is determined on pure-bred live stock as a permanent paying industry, and an effort will be made to develop it to such an extent that the community will be cited as an example of what should be done in every county. Illustrated lectures were given on hogs, beef cattle, and

dairying, and details for a complete canvass of the county were agreed upon. Community committees will aid in farm-to-farm work, and bankers and business men will give financial aid to put pure-bred sires in the place of scrubs.

EXTENSION WORKERS PLEASE MONTANA FARMERS WITH PLAY

"The Long Trail," a three-act farm bureau play, depicting life in Montana in 1868, 1893, and 1918, has just closed a successful season, 33 performances having been given to a total attendance of 14,692 people. "The Long Trail" was written by Miss Mignon Quaw, assistant State leader of home demonstration work in Montana, the characters of the play being types that lived in Gallatin Valley. The cast was chosen from the extension workers at the State College of Agriculture at Bozeman.

A schedule of dates was arranged with the different farm bureaus throughout the State, the play being put on for $15, which merely covered the cost of excess baggage. The total gross proceeds for the season were $7,949 and the net proceeds $3,830, thus netting a considerable sum for each farm bureau visited. The cost of costumes, wigs, make-up, scenery, draperies, properties, photographs, trunks, crates, advertising, lantern slides, drayage, and cleaning bills, and the expenses of a property man who traveled with the show amounted to about $1,000, and were paid by the show itself.

The play caused a much larger attendance at the annual meetings of the farm bureaus visited and an increased warmth and friendliness in the manner of the farmers toward the extension people could be noticed. In some counties the executive committee made a special rate to farm bureau members. This added interest to the community work. Nowhere was the price of admission more than $1 and in some places it was as low as 25 cents.

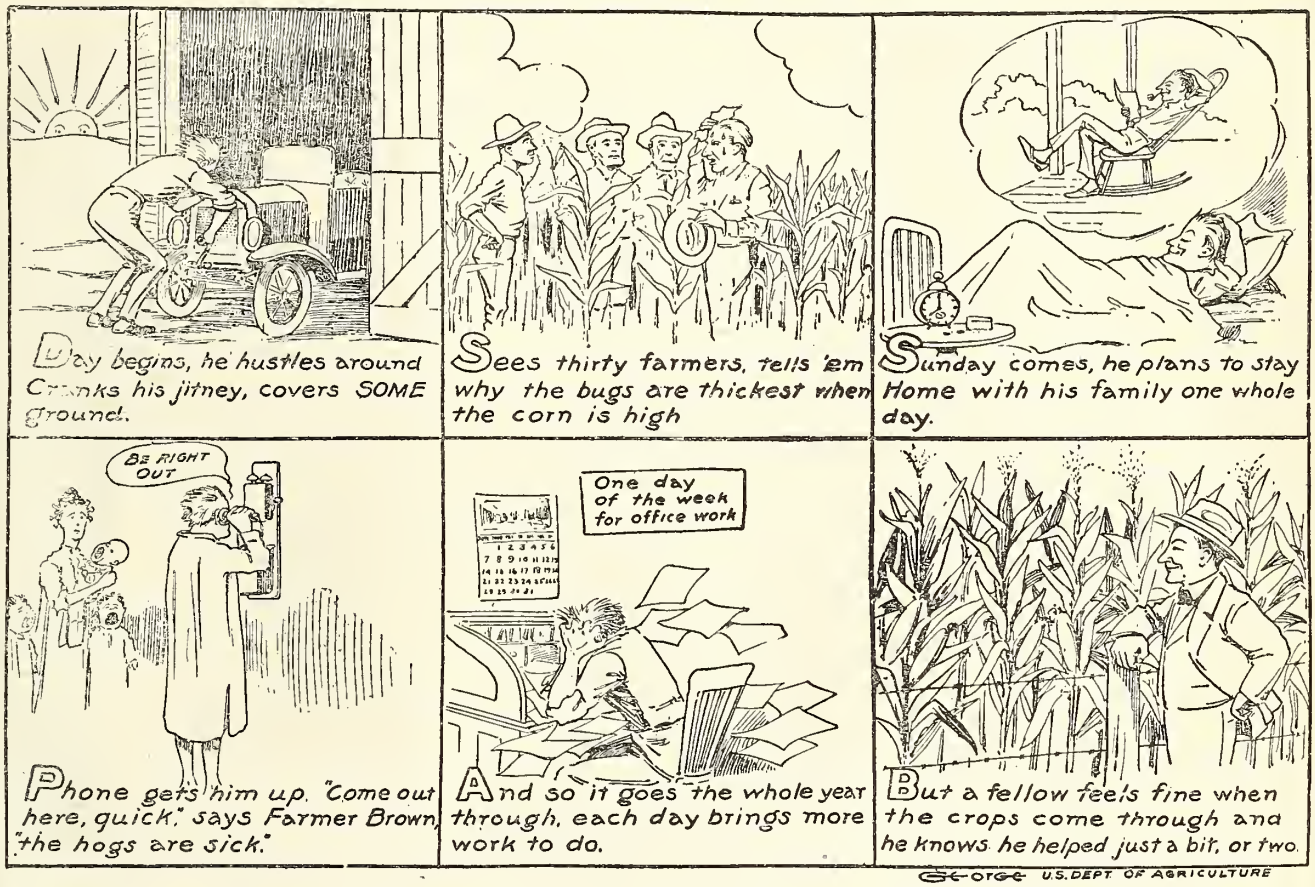
The farm bureau in Lewis and Clark County, where the capital city is located, arranged with each farm bureau in the State to give complimentary tickets to its respective senators and representatives. The governor of the State and the chancellor of the Greater University of Montana had boxes. Pioneers of Montana were also guests of the farm bureau. The performance was witnessed by 1,100 people. The next day the house of representatives adopted resolutions telling its appreciation of the play, recognizing the services of the farm bureau during the war, and pledging its cooperation in the work, which "should be of immense value to all the people of this State."

CORN CONTEST ORGANIZED IN 65 INDIANA COUNTIES

Sixty-five Indiana counties have organized for the 5-acre corn growing contest, the biggest event of the kind held by any State, and indications are for the largest enrollment ever obtained. A State-wide campaign has just been completed by practical corn growers, and they report interest this year keener than ever. This contest is conducted each year by the Indiana Corn Growers' Association, working in cooperation with Purdue University and the county agents.

The contest this year is arranged also as a demonstration to show each community how proper methods of planting, cultivation, fertilizing, and other factors increase the yield. The only requirements for entrance to the contest are that the contestant joint the corn grow-

WHY A COUNTY AGENT NEVER GETS LONESOME



ers' association and agree to keep a record of the cost of production of the crop on one of his fields from which the 5-acre plot is later selected.

The association will give a bronze medal to each person producing 75 to 85 bushels of corn to the acre, silver medals to those producing 85 to 100 bushels, and gold medals to those growing 100 bushels or more. Each county also offers a minimum of $25 or its equivalent in prizes to be divided in the county, 70 per cent being given on the basis of yield and 30 per cent on the basis of cost of production.

"Great Oaks from Little Acorns Grow"—True in Farming Clubs

Organization of community clubs is usually not difficult when one club is started and the benefits become known to the surrounding country. This was the experience of the county agent in Hampton County, S. C., after one community club had got into action. A group of farmers in a neighboring community took the initiative and sent a committee to him to ask him to come out and get a club started for them.

"I find that in these small groups of men who know each other," the agent reports, "I can get more effective work."

His plan is to organize each community and then have a central country club which will be a clearing house for the smaller clubs. This with slight variations is the general plan of rural organization in most of the Southern States.

REORGANIZE WOOL POOL

Members of the Gooding County (Idaho) Farm Bureau last year pooled 128,000 pounds of wool, which sold for an average of 60 cents a pound. They had been offered locally an average of 40 cents a pound, and by means of the wool pool they received $25,600 over the local price. Members have met again this year and reorganized for the pooling of the season's clip, and have agreed to deliver wool in good condition to the warehouse.

SEVENTY JOIN ASSOCIATION

The Essex County (N. J.) Farmers' Cooperative Association, which was started last December through the efforts of the county farm bureau, now has a membership of 70. Since February 10 it has done $8,000 worth of business.

THE COUNTY AGENT AND THE FARM BOY

(From The Maryland Farmer)

Looking back over our early days, those of us who spent them on the farm find few things standing out more vividly in our minds than a certain form of iniquity practiced against many of our acquaintances. That iniquity seemed trivial then—to the parents—but it put deep in every lad's heart a sting and dent that has driven thousands of lads to the city and lost to agriculture untold numbers who might have prospered in tilling the land, and with a resulting agriculture greater by far than that of to-day. Instead of telling the story, however, let's leave it to the discerning poet who summed up the situation thusly:

"Why did you leave the farm, my lad?
Why did you bolt and leave your dad?
Why did you beat it off to town
And turn your poor old father down?
Thinkers of platform, pulpit, press
Are wallowing in deep distress;
They seek to know the hidden cause
Why farmer boys desert their pa's.
Some say they long to get a taste
Of faster life and social waste,
And some will say the silly chumps
Mistake the suit cards for their trumps
In waging fresh and germless air
Against the smoky thoroughfare.
We're all agreed the farm's the place,
So free your mind and state your case."

"Well, Stranger, since you've been so frank,
I'll roll aside my hazy bank,
The misty cloud of theories,
And tell you where the trouble lies:
I left my dad, his farm, his plow,
Because my calf became his cow;
I left my dad—'twas wrong, of course—
Because my colt became his horse;
I left my dad to sow and reap
Because my lamb became his sheep;
I dropped my hoe and stuck my fork
Because my pig became his pork;
The garden truck that I made grow
Was his to sell but mine to hoe;
It's not the smoke in the atmosphere
Nor the taste for life that brought me here:
Please tell the platform, pulpit, press
No fear of toil or love of dress
Is driving off the farmer lads,
But just the methods of their dads."

It is not, however, the "platform, pulpit, press" that is doing the most toward correcting and righting this one-time wrong. It is that tireless worker, the county agent, who, with his medium of pig clubs, corn clubs, potato clubs, calf clubs, and the like, is giving the farmer boy his chance. And while righting this wrong he is developing the lads of the country into good business farmers. And fortunately the county agent is not the only one to see the light. We all remember what the bankers of Worcester County did for the pig-club boys. We are seeing what the bankers of Harford are doing this year to aid County Agent Derrick in his work—not a bank in Harford County is holding back on filling out the premium lists or lending the club boys the money, on their unsecured notes, to purchase better stock or finance their corn crops. Worcester will soon be the premier pure-bred hog county in Maryland. Harford County will push her, but Harford will have glories in another line, for her established reputation for good corn is being made secure for the future through the boys now planting the best seed obtainable and through their opportunity to dispose of their corn through the corn growers' association. Some day all the dads in this State will see the light and the farm-boy exodus will be largely a thing of the past, thanks to the county agent.

Agents Save Money for Farmers By Helping with Fertilizers

A farmer in Richmond County, S. C., needed 10 tons of fertilizer, but was undecided on what he should get. He could not obtain cottonseed meal, and was about to buy fertilizer materials ready mixed when he consulted the county agent. The agent showed him how, with dried blood, nitrate of soda, muriate of potash, and 16 per cent acid phosphate, he could mix his fertilizer materials at home, and at a saving of more than $80.

In Fairfield County the agricultural agent found a farmer was about to place an order for 3 tons of fertilizer to be used as a top dressing for a second application for corn and cotton. The agent explained that he could get as good results and save money by using nitrate of soda. The farmer did it and saved $110. The same agent had a sample of fertilizer analyzed for another grower, and found that it did not come up to the guaranteed analysis. As a result the farmer got a reduction of $5 a ton, or a total of $250.

BUY COMMUNITY LIME SPREADER

Members of the farm bureau in one of the communities of Otsego County, N. Y., have combined and purchased a lime spreader, and have thus taken a long step in solving their problem of applying lime at the proper time of the year and in sufficient quanities to get results. The spreader is to be rotated among the members. Nonmembers may also use it by paying 25 cents an acre. In the early

stages of the use of lime in a community, especially in a small way, spreaders are often not available because single landowners hesitate to purchase them. Even after the use of lime is established a single machine will often meet the needs of several farmers.

DIVERSIFIED FARMING WINS UNDER SOUTHERN CONDITIONS

When the influx of the boll weevil made cotton growing hazardous and cattle fever tick eradication began to make stock raising profitable in many sections of the South, the agricultural agent stepped in and began to urge better farming methods.

There are many examples of how agricultural progress and prosperity have been brought about by following the advice of these agents and other extension workers of the United States Department of Agriculture and State agricultural colleges. Here is how it worked out in Madison, Tensas, and East Carroll Parishes, La. Farming land in this section is now renting for almost as much as it sold for in 1914. Land was then selling for $15 to $20 an acre. It is now renting for $10 to $12 an acre. The increase in the price of cotton has had something to do with the increase in land values, but not a great deal, as the cotton acreage is now only a small part of what it formerly was. By far the greatest influence on the increase of land values has been the increased production of crops and the improvement of pasture land for live stock.

Raising Grain for Sale

This territory now not only is raising its own supply of corn, oats, and hay, but some to sell. Particular emphasis has been given to improving seed. One agent reports that the acreage yield in corn has increased more than 100 per cent as the result of using improved seed. Yields as high as 79 bushels of corn to the acre have been obtained from seed which had been field selected for three years. Since 1915, the banner year for oats production, when almost a million bushels of oats were shipped from the three parishes, much grain and hay have been exported from this territory. During the past year or two, however, instead of marketing the large production of grain, the farmers have gone a step further in safe farming by marketing their grain through live stock.

In 1914, when the farm-demonstration work was started, comparatively few hogs were in this territory, and almost all of these were native scrub stock. Hog cholera was prevalent and the agents began a systematic campaign of treatment with anti-hog cholera serum and virus and for the practice of sanitary measures. As a result the disease was brought under control and hog raising made safe. There are now at least 100 per cent more hogs in the three parishes than there were in 1914, and the razorback is the exception. Last year the farmers shipped 80 carloads of hogs to market.

Raising More Good Cattle

Even greater strides have been made in raising beef cattle. Madison, Tensas, and East Carroll were among the first parishes in Louisiana to exterminte the cattle tick, which enabled them to get an early start in raising better stock. In Madison Parish alone the number of cattle have increased from about 6,000 head to more than 15,000 head during the past five years. The increase in the other two parishes has been even greater. In the fall of 1918 a total of 212 carloads of cattle were shipped to market from the three parishes. Good bulls have been placed on nearly all of the ranges, and there are now but few cattle that do not show good blood lines. Twenty-five pure-bred bulls have been brought into Madison Parish since January 1, 1919.

SEE STOCK BEFORE BUYING

Interest in pure-bred live stock continues to increase in Alachua County, Florida, and the county agent is frequently called upon to select animals for both farmers and club members. When possible he has tried to assist the prospective purchasers by taking them to pure-bred stock farms and letting them see for themselves just what they are buying.

One important feature of these trips is that the prospective purchaser gets the benefit of seeing the equipment and methods of some of the best breeders in the community, as well as becoming more familiar with the desirable points and characters of the pure-bred animals.

MODERN STORAGE LESSENS SWEET-POTATO LOSSES

Importance of modern sweet-potato storage houses, such as have been designed by the United States Department of Agriculture, in which potatoes can be kept with practically no loss, is shown by the enormous waste resulting from improper storage. South Carolina in 1917, because of disease in the field and in storage, lost 60 per cent of its crop—that portion being valued at $4,688,110.

This State produces about 12.5 per cent of the sweet potatoes raised in the United States, and the crop ranks fourth in the State in value, being surpassed only by cotton, corn, and tobacco. Storage losses through the South are being greatly reduced, as the farmers and dealers are continually building both community and individual storage houses of the improved type.

FARM BUREAU CONFERENCE TRAVELS THROUGH STATE

An extension conference traveling in automobiles is an idea from the West.

At the close of the annual meeting of the county agents held at the California Experiment Station at Davis and the Agricultural College at Berkeley, the agents from 34 counties and the assistant agents, the county-agent leader and his assistants were joined by 91 farmer delegates representing the county farm bureaus of the State. The entire party, comprising 151 people, spent seven days traveling by automobile from Berkeley to Riverside. The delegation passed through 11 counties, 9 of which had farm bureaus and 8 of which had resident county agents. In counties having agents, the agents occupied the leading car and conducted the party to interesting demonstration work. Short stops were made, at which the county agent or the farmer on whose ranch the demonstration was being conducted explained the method and results.

Some Things Seen

Noteworthy things seen were poultry and bee demonstration work at Santa Cruz, stock judging at Salinas and Lankershim, the Jim Jeffries and "Lucky" Baldwin ranches in Los Angeles County, fire-fighting apparatus at Santa Paula, seed-bed preparation at the Camarillo ranch, pruning of apricot trees, citrus pruning, the artesian well and drainage project in Orange County, spraying demonstration in walnut orchard, citrus-bud selection, and poultry culling.

Meetings were held each night at the farm-bureau center in the county the party was visiting. The resident county agent explained in detail the work under way in the county, and farm-bureau members discussed subjects in which they were interested. The delegates considered the advisability of a State farm-bureau federation and recommended to the county farm bureaus that such an organization be formed at a later date.

The party was entertained by the local farm bureau at dinner and supper

in almost every county passed through, while in southern California the visitors were repeatedly met at county lines by committees of women, and boxes of oranges were literally poured into the automobiles. The trip closed, after covering 937 miles, with a banquet at the Mission Inn at Riverside. "Sights" were neglected in order to attend the work of the conference.

Benefits from Trip

The farmers participating were unanimous in approval of the plan. The automobile cost was met by the College of Agriculture and the farmer delegates paid their own subsistence expenses or they were met by their farm bureaus. Aside from the practical value of the demonstrations and farm practices observed, the whole tone of county-agent work in the State was improved. Farm-bureau officials returned home with an enlarged outlook, the county agents saw demonstrations and organization work under a variety of conditions, and the people of the counties visited were given an enlarged vision of the State and national extent of the work.

While such an extended trip is possible only where roads are highly improved, the idea seems to be an excellent one, Department of Agriculture officials believe, and similar or less ambitious trips doubtless could be planned in a number of the States with real value to the extension organization and work.

Farm Bureaus Have Vital Work, Says Governor of Connecticut

In a recent letter to John J. W. Alsop, president of the Hartford County Farm Bureau, Gov. Holcomb, of Connecticut, said.

"Connecticut is a manufacturing State but probably one of the greatest problems confronting us is the production of a larger proportion of the food which we consume within our borders. Upon the success of the solution of this problem depends to a considerable degree the future industrial welfare of our State. The State maintains an agricultural college for the training of teachers and farmers and for the collection of information of all kinds concerning agriculture. It also maintains an extension service for the dissemination of this information and teaching among the people.

"The county farm bureaus are the 'cutting edge' of this entire machine. They furnish the means by which the accumulated agricultural knowledge and information gathered by the experiment stations, the college, and the extension service are brought home to the farming public. In addition to this they have been very active in the solution of the various economic problems confronting the farmers, and the encouragement and support of their work by the public is, therefore, of the greatest importance to the State as a whole."

BUSINESS MEN BELIEVE AGENTS MEAN PROSPERITY

Additional proof that the bankers and business men in Arkansas believe that county agricultural agents promote general prosperity is shown by a report made by a crop reporter of the United States Department of Agriculture working in that State. He reports that one of the banks in Batesville, Independence County, has secured a supply of good seed corn through the assistance of the local county agent and has agreed to distribute it among the first 100 corn-club boys who apply for it. Enough corn to plant 1 acre will be given each of the 100 boys, provided they sign an agreement to enter the boys' corn club and carry out the rules of the organization. Every effort is being made by the business men of Independence County, the agricultural agent, and the corn club to retain the State championship won by this county last year.

That Batesville business men are also interested in home demonstration work is shown by the fact that recently the agricultural committee and advertising committee of the Batesville Chamber of Commerce purchased an automobile and turned it over to the county home demonstration agent, to be used in her work among the girls' canning clubs. This will promote the work of the girls' clubs of the county, and also is an evidence of the benefit of a wide-awake commercial club, which stands for the best development of all the county's interests.

SUNFLOWERS GOOD SILAGE, MONTANA BUREAUS FIND

Montana farm bureaus carried on numerous crop demonstrations last year and did notable work with tame sunflowers as a silage crop. Sunflowers under dry-land conditions made an average return of 10.25 tons of silage an acre, and under irrigated conditions 29 tons an acre. These demonstrations showed that sunflowers yield almost three times the tonnage of corn under similar conditions. This kind of feed is particularly adapted to high valleys which do not produce abundant corn. The quality of the sunflower silage has been demonstrated to be good.

Farm bureaus in Montana are the official organization through which the State experiment station distributes pure and valuable seed which it has developed and increased. These organizations afford a reliable means whereby the experiment station can keep in touch with certain varieties of grain of proved worth. By working through the bureaus it is possible to secure an equitable distribution over the entire State.

IMPROVING IDAHO DAIRIES

Jersey breeders who are members of the county farm bureau of Ada County, Idaho, have organized a Jersey-cattle club of 18 members, 15 of whom are pure-bred Jersey owners. Arrangements were made to buy a carload of pure-bred Jersey cattle at $200 a head from Princeville, Oreg. Several carloads will be purchased if high-quality stock can be found. The membership fee is one dollar a year, and the officers must be owners of pure-bred Jersey cattle.

Governor Lowden, of Illinois, Indorses County Agents' Work

"The most helpful, hopeful movement of modern times in agriculture is the county bureau," said Gov. Lowden, of Illinois, at a recent meeting of Indiana farmers. "I believe the county agent is going to help us bring agriculture up more rapidly than any other agency we have had in the past, and that is because he gets the farmers to cooperate with one another along the most practical and successful lines. I know that it is true in my State, and I am quite sure it is equally true here.

"While we have been developing in this country the best scientific education that any country has had—our agricultural colleges have made marvelous progress in the last generation—we have found it difficult to transmit that science from the classroom to the farm. We have not been able to get it from the college out to the field, and that is exactly what the county agent is doing to-day all over this western country. He is bearing out into the fields this knowledge which the professors teach, and teach successfully. I have more faith in an improved and permanent agriculture through the agency of the county farm bureau than in any other agency we have."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Farmers' Exchanges Successful.

County farm bureaus in New Hampshire are conducting exchanges with excellent results. One hundred and twenty-five farmers attended a meeting to organize an exchange in Belknap County and in 15 minutes raised $2,300 of the $3,000 capital needed. The members of the Grafton County bureau will purchase 50 tons of limestone this spring through their exchange. Hillsboro farmers have pooled orders for fertilizers and have placed them with dealers. Merrimack County farmers in four weeks unloaded 5 cars of grain and 300 tons of lime. The February business of the exchange in Rockingham County amounted to $8,800. Stratford County farmers have formed a cooperative grain company and purchased a mill. The capital stock is $15,000 in shares at $25 each. In all, 40 tons of fertilizers and 90 tons of limestone have been ordered.

Do Earthworms Injure Lawns?

The small boy who is preparing to go fishing has a friendly feeling for earthworms—known to juvenile anglers as "fishin' worms"—but his father, with a particular pride in a well-kept lawn, may regard them as enemies. The father's feeling toward the lowly worm may or may not be well founded. The common impression is that earthworms are injurious to lawns, but the United States Department of Agriculture, through its Bureau of Entomology, says that the damage is probably very light. In fact, it is believed that instead of being injurious these worms are really beneficial in increasing the fertility of the soil by bringing to the surface soil from a lower depth, and in this way keeping up a very slight but continual top dressing.

Under some circumstances it is better that the worms be exterminated, though they are not objectionable on house lawns. When they become numerous on putting greens of golf links their little earthen pellets are a source of annoyance. In such cases it is recommended by the department entomologists that the soil be drenched with kerosene emulsion. This treatment gives good results against the common white grub, which is also an enemy to lawns. Saturating the oil with a solution of corrosive sublimate is also recommended, but it should be remembered that this preparation is deadly poison, and the greatest care should be used in its preparation and use. Three ounces of this substance should be dissolved in two quarts of water in some glass or glazed vessel which will not absorb the poison. The stock mixture of this preparation is sufficient for 50 gallons of water, or practically the capacity of the ordinary oil barrel. This diluted mixture should be applied to the lawn at the rate of from 1½ to 2 gallons to each square yard, in case the lawn is young or newly established. A stronger application, not to exceed 3 gallons, can be used on older sod.

How Cow Testing Helps Creameries.

Twelve per cent of the patrons of the cooperative creamery of Dover, Minn., are members of the local cow-testing association. Though only 12 per cent of the number, they receive about 36 per cent of the money paid by the creamery to its patrons. This is not because of larger herds but because of better cows and better dairy practices.

In January the returns to dairymen who belonged to the cow-testing association were $14.19 per cow, while the returns to nonmembers were $5.95 per cow. At the same rate, the returns for a year would be almost $100 per cow more for the herds belonging to association members. This was brought about by eliminating low producers and feeding the remainder according to known production.

During the year 1914 the creamery produced 243,000 pounds of butter. For 1917 the quantity increased to 330,000 pounds. As the number of cows was approximately the same for the two years, the gain was due to increased production per cow and not to an increased number of cows. Not only was there a gain in business for the creamery, but the patrons were better satisfied, because they received larger returns.

Buy Feeder Hogs in South.

Members of the county farm bureau in Montgomery County, Ind., with the assistance of the county agent, corresponded with county agents in Alabama and Tennessee and have been able to locate feeder hogs. The county agent in Russellville, Ala., advertised a scale of prices that would be paid by a feeder from Montgomery County, Ind., on a certain day, and 254 head were secured as a result. The county agent in Alabama expects to have hogs for sale every week.

Unite to Grow Good Potatoes.

Several members of the Tompkins County, N. Y., farm bureau are uniting to produce potatoes of uniform type and quality in order to help solve their market problems. The farmers' company has ordered for these men 350 bushels of Sir Walter Raleigh potatoes, which have been tuber-unit selected for the past nine years. The association is to be known as the Better Potato Growers' Association of Tompkins County. It not only proposes to build up a reputable brand of potatoes for market purposes but it will give careful attention to perpetuating good seed through the latest methods of selection and disease control. The growth of this organization will be watched with interest.

Teach Foreign American Cooking.

When a woman comes from a country where housewives of her class have fed their families for generations on black bread, olive oil, and cheese it is not easy in a new country to learn new methods of cooking. Many mistakes in selecting proper food are apt to be made. The United States Department of Agriculture realizes this, and the home-demonstration agents from the department and the State colleges are teaching the foreign women how to select and cook American food. In Bayonne, N. J., the home-demonstration agent and the foreign workers of the International Institute cooperate. It is found that many of the cheap nutritious American foods are unknown to the Italian and Polish women. But few used oatmeal, and those few prepared it improperly. In one month last winter in Bayonne 25 mothers were taught by the home-demonstration agent how to prepare oatmeal properly. In the 25 families there were 92 children.

A Bayonne girl of 13 years lost her mother last fall during the influenza epidemic. She has entire charge of six younger brothers and sisters. Her father

gives her $1 a day for food for the seven. Coffee and cake were the staple articles of food in the children's diet three times a day. The home-demonstration agent has now taught the little sister-mother how to prepare simple, cheap, nutritious dishes.

Pushing Own-a-Cow Campaign.

Bankers are cooperating with the agricultural agent in Jefferson Davis Parish, La., in an "own-a-cow" campaign. The bankers are financing the farmers, and the agent is preaching the gospel of better live stock. In the fall of 1918 he bought five carloads, 160 head, including 5 registered bulls, of pure-bred Holsteins from Wisconsin. These dairy animals were widely distributed among the farmers, one or two head going to each owner. So pleased have been the owners of these pure breds that the agent is already taking orders from others. It is probable that several additional carloads of such cattle will be purchased next fall, the agent reports, together with about 200 pure-bred calves for members of the boys' calf club. The bankers and the school board will back the proposition to help the boys get a start in cattle raising.

More Feed from Irrigation.

Prospects throughout the western reclamation belt indicate that the food production records of 1917 and 1918 will probably be eclipsed by those of the current season. Prices of essential foodstuffs are high enough to make it attractive and profitable for farmers to produce on a big scale. Reports indicate the labor supply is abundant and good, although demanding high pay. Credits are not cramped, with the consequence that native farmers are not handicapped in their operations. This is why it looks like a boom year for the rubber-boot farmers of the far west.

Service to Ohio Farmers.

The buying and selling division of the farm bureau of Clermont County, Ohio, has handled 14 carloads of fertilizer this year and stabilized the price in the county. Through the farm bureau 42.9 tons of nitrate of soda were distributed to the farmers, most of which will be used on apples, there being enough to fertilize at least 20,000 trees. The nitrate cost $85 a ton, which is $27 a ton less than was asked by some dealers in the county. One hundred barrels of lime sulphur have been delivered to the fruit growers, as well as several thousand pounds of blue vitriol and arsenate of lead. At present the bureau has orders for 16,000 pounds of binder twine, which will be distributed to the wheat growers at an estimated saving of 5 cents a pound.

No Beer, More Milk.

One leading city of the Southwest formerly had extensive brewing interests, it being a distributing center for the principal stock-raising sections of Texas. With the coming of prohibition the beer plants were paralyzed temporarily, until an ingenious brewer converted his malt factory into a milk depository and distributing agency. Now other brewers are also operating as emergency dairies, with the result that many people who used to drink beer are finding the wholesomeness in an abundance of milk.

More Meat Animals on Farms.

Last November the Secretary of Agriculture addressed a statement to the farmers of the Nation, in which he said: "The world will have need particularly of a greater supply than normal of live stock, especially of fats. We should not fail, therefore, to adopt every feasible means of economically increasing our live-stock products." How the farmers are responding to this counsel is shown by a recent report of the Bureau of Crop Estimates, which is based upon reports from about 10,000 reporters. The farm supply of swine, says the report, increased about 18.5 per cent, or about 11,892,000 head, during March, as compared with an increase of about 7.6 per cent, or 4,789,000 head, during March of last year. The supply of cattle increased about 2.8 per cent during March this year and a year ago, but from the standpoint of numbers the increase in March of this year was 1,959,000 head, as compared with 1,846,000 head for the month a year ago. The sheep supply appears to have increased 11.9 per cent, or 6,394,000 head, in March, as compared with an increase of 7.5 per cent, or 3,696,000 head, in March of last year. From January 1 to April 1 the apparent increase of sheep was 20.5 per cent, or 10,204,000 head, as compared with an increase of 9 per cent, or 4,367,000 head, in the first three months of 1918.

Fewer Grasshoppers This Year.

This seems to be an offyear for grasshoppers, according to entomologists of the United States Department of Agriculture, who recently made a survey of the grasshopper situation in a number of counties in southwestern Iowa that were badly infested last year. According to the report only a few counties in that section are likely to suffer this season. A comparatively small number of eggs were deposited last fall, probably due to parasitic insects having killed most of the hoppers before that time. Except in the counties mentioned, fully 85 per cent of the eggs that were deposited have since been destroyed by insects that feed on them. The success of the use of poisoned bait was also noticed by the entomologists. Very few eggs could be found on the farms where poisoned bran was used last summer, but on other farms near by the eggs were unusually abundant. This difference was so great as to be noticeable even in adjacent fields.

Work for Business Farming.

A large number of Montana farm bureau members have organized a State farm management association and will offer over $300 in cash prizes for the advancement of this type of work. There will be $100 in prizes for the best kept and most accurate farmer's account book, another $100 for the best organized farm as shown by the account book, and a $100 trophy as sweepstakes will be offered as a combination prize. A $25 shield will be awarded to the county or farm management club showing the most results accomplished from keeping and studying record books in groups. These prizes have been donated by commercial firms doing a State-wide business, all of whom recognize the importance of this work.

More Interest in Raising Sheep.

As a result of high prices of wool and mutton and the value of sheep as weed and waste utilizers, western irrigation farmers are keeping more and larger flocks. This is shown by reports to the United States Department of Agriculture. As a rule these farm flocks are of good breeding, many consisting of pure-bred animals, their owners making a specialty of selling pure-bred ram lambs to range-country stockmen, who do not reserve breeding stock from year to year. Several projects are now operating wool pools, the main function of which is to concentrate the wool in large quantities and develop keener competition among buyers. Combination also favors grading and better classifying of wool and allows a small producer to realize greater profits from his sheep-farming operations.

Money saved is money earned. Buy War-Savings Stamps.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JUNE 18, 1919 No. 46

COST OF PRODUCTION TO BE STUDIED IN LARGE WAY

Secretary Houston Requests Additional Funds for Work

Tells Plans for Development of This and Other Management and Farm Economics Projects; Recommends Change to Bureau

To carry out the plans of the department for developing and making more effective its activities relating to farm management and farm economics, including cost of producing agricultural products, farm organization, farm finance and farm relations, land utilization, and farm-life studies, Secretary Houston has recommended to Congress that $611,990 be made available for the prosecution of the work in this field during the fiscal year 1920, and that the name of the Office of Farm Management be changed to Bureau of Farm Management and Farm Economics. This estimate is based upon the program outlined by a committee composed of recognized authorities on farm management and farm economics which made a thorough study of the subject at the request of Secretary Houston.

Men in Charge of Work

The task of carrying out the program has been assigned to Dr. H. C. Taylor, who owned and operated a farm in Wisconsin and was head of the department of agricultural economics in the college of agriculture of the University of Wisconsin prior to his recent appointment as Chief of the Office of Farm Management. The department has also secured the services of Francis W. Peck, of the University of Minnesota, to conduct the studies relating to the cost of producing farm products; of Dr. L. C. Gray, of Peabody College, to direct the work relating to land economics; and of Prof. C. J. Galpin, of the University of Wisconsin, to supervise farm-life studies. "This is in accordance with and a part of the plan," says Secretary Houston, "to secure some of the best available minds in the country to direct the work relating to farm management and farm economics, and particularly the studies of the cost of production."

"Having secured such experts as these to direct the principal activities, I am confident that the work proposed will be executed in a highly satisfactory way and that facts and information of immense value to individual farmers in dealing with their own problems, and also to the Nation for its guidance in considering broad agricultural policies, will be secured and made available. I therefore earnestly hope that the program will be accepted as outlined and that the appropriations asked for will be provided at the earliest possible moment."

Especial emphasis is to be given studies of the cost of producing farm products, and it is proposed to expend approximately $245,000 in developing this important line of work. The results of these investigations will make it possible to analyze the elements of cost and to point out to farmers the best methods to follow. This, it is believed, will lead to the better organization of farms with a view to reducing costs and increasing profits, which in turn will be of benefit both to producer and consumer. Furthermore, these studies will furnish the basis for passing intelligent judgment upon the probable effects of any given legislation or other public activity upon the farmer as a producer and as a citizen.

Work on a number of the projects outlined by the committee is now actively

(*Continued on page 10.*)

DECLINE IN SHEEP SINCE 1914.

Before the war the United States had approximately one-tenth of all the sheep in the world. Since then the total number of sheep has decreased from all causes about one-tenth, possibly more. That makes the world decline in excess of 50 millions of sheep, or slightly greater than the number of sheep in the United States.

In some countries there has been an increase since 1914, but from the reports of the International Institute of Agriculture and also of the Food Administration the countries which report increases are outnumbered by those whose sheep raising declined.

The Canadian Food Board places the probable decrease in sheep in Europe alone in excess of 54 millions. That is considerably higher than other estimates, but it is fairly safe to conclude that at the time the armistice was signed there were fewer sheep in the world by many millions than when Belgium was invaded.

FARMING SCHOOL IS INCLUDED IN NEW UNIVERSITY OF A. E. F.

College of Agriculture Reaches Thousands of Soldiers in American Army

Department and State Institutions Aid in Organization and Work of "Adventure in Education;" Forty Courses are Taught

[By F. W. Beckman.]

BEAUNE, FRANCE, *April 21.*—Over here in east central France is an American university with a college of agriculture and 10 other colleges, as well as a farm school, which is undertaking to do new things in education. It might well be termed an adventure in education, because it is blazing a trail through regions that are uncharted and full of uncertainties. But the great undertaking of the Army Educational Commission is meeting with success and its university and allied work have taken on an activity and extent that are significant.

Secretary of War Baker paid this university a visit to-day. Following his inspection this is what he said in an address to an open air convocation attended by 7,000 students and faculty members:

"I have been thrilled by what I have seen. This university is striving to do something never before undertaken in the history of education and it is succeeding. It has set up within the Army a great educational system which is going to send soldiers back to civilian life ready and able to assume the responsibilities of citizenship which are certain to rest upon them. It is providing educational opportunity not merely for those who already have some education, but is going to make sure also that not a single illiterate soldier will go back home without knowing how to read and write. This program marks another notable event in education and out of it are certain to come new and great developments."

Hundreds of Thousands Reached

Six weeks ago this university had an existence only in an idea. To-day it enrolls 6,000 students and has 2,600 more in the farm school located near-by, while the extension activities of the Army Education Commission extend throughout the American Expeditionary Forces in France

and Germany and reach literally hundreds of thousands of men in one way or another. Early in March the university was merely a former American hospital center, located near the town of Beaune, in the famous Cote D'Or vineyard district. It was occupied by a limited number of engineering troops, who were taking care of Uncle Sam's property, and by the nucleus of the university faculty and administrative staff.

About the middle of March a host of young American soldiers, specially chosen, came sweeping into this camp from all parts of the A. E. F., packs and guns on their backs, gas masks and "tin" hats dangling at their sides. The university wasn't ready for them when they arrived and classes were deferred for a few days while the men put on overalls, took up hammers, saws, shovels, and picks and helped to make it ready. They changed and repaired old buildings, built new ones, laid concrete floors, repaired streets, and generally "slicked things up."

To-day the university with its classrooms and the like occupies more than 300 structures, all of the long, low barrack type, most of them of concrete or tile, but the newer ones of the ready made, "quick erection," wooden type devised for Army uses. There are no imposing towers or turrets, but in excess of 800 carloads of material and equipment, counting the "dinky" French and captured German cars in use since early in March over the American-built railway line that connects with a French main line in Beaune.

Complete in Itself

The university community numbers more than 10,000 persons, including the faculty and administrative staff of 1,000 and a considerable number of engineering and labor troops. It is complete in itself and self-sufficient, providing all its own provisions, commissary stores, and university supplies through Army sources, pumping its own water supply, making its own electricity, operating its own laundry, maintaining its own telephone system.

At the farm school, a few kilometers away, at Allerey, in another former American hospital camp, are more than 4,000 additional Americans. The Army has set up these institutions under the immediate guidance of Col. Ira L. Reeves. The Army machinery is wonderfully big over here in France. Sometimes it seems somewhat slow in getting in motion, but when it moves it moves with tremendous momentum, whether in the peaceful enterprises of education or in the business of fighting.

Agricultural Work Popular

Agriculture is truly "on the map" in this educational program in the A. E. F. Back of agriculture is President K. L. Butterfield, of Massachusetts Agricultural College, one of three members of the Army Educational Commission, who has surrounded himself with a capable staff of men from the agricultural colleges of the United States. The agricultural work was early under way; it has reached far and has been unusually popular.

Each week tens of thousands of farmer soldiers are in class and lecture rooms and in discussion meetings throughout the A. E. F. There is probably not a single regiment of the hundreds of the A. E. F. in France and Germany in which some sort of educational work in agriculture is not under way—a school, an institute, a short course, a farmer's club, special lectures, or correspondence courses.

In the week ending April 18, some 20 specialists from the agricultural colleges of the United States were out in the A. E. F. giving two and sometimes more institute lectures or short-course talks daily. It is likely that their audiences totaled 25,000 for the week. From the Army itself scores of other capable speakers have been drawn for this same kind of work. In one region alone, the Bordeaux region, is an aggressive agricultural staff of 35 men who are busy every day with institutes, clubs, schools, and field trips. That is a region where men are held to await transportation home, a region in which some doubters said conditions were unfavorable for educational work.

Farmers' Clubs Organized

In most of the military units reached by these speakers, "farmers' clubs" are set up. Through these clubs the farmer soldiers continue their study of farm and rural life questions. In one regiment of the Ninety-first Division more than 1,300 were enrolled in such clubs. Even while they were in the great camp at Le Mans, where final preparations for the journey home are made, the men maintained these clubs. So determined were they about making educational use of their spare time that their organizations will be taken on board ship and carried on there and even in the home camps where final demobilization will be awaited.

"We expect to stay by this educational program until the last minute," said one of the leaders, "because the men mean business in this matter of learning more farming."

Probably 500 of these clubs have been organized throughout the A. E. F., with an enrollment of 15,000 to 20,000. Sometimes they have only a dozen members and sometimes as many as 100. They meet from one to three times a week for study and discussion of farm topics, to carry on debates, or to hear lectures by experienced men.

Institutes Successful

The farmers' institute idea was first tried out in the Bordeaux area late in January, after representatives of the Army Educational Commission had convinced the authorities that it would work in spite of the fact that it was an embarkation area. Three agricultural specialists from the commission found several officers and enlisted men, as many more "Y" men who could help them, and together they set up a series of 14 three-day institutes in as many different units, three with negro troops. The idea was new and many men came to the first meetings in a doubtful attitude, but they remained to give close attention to the practical discussions presented. Then the formal talks were surrounded by men eager to talk about farming "back home" and discuss farm problems more intimately.

Somewhat as a bit of Army pleasantry, perhaps a squadron of men from a camp of flyers, mostly city men, was sent over to be filled up with agricultural "dope." Some of them confessed that they came

(*Continued on page 9.*)

COLLEGE OF AGRICULTURE IS PART OF A. E. F. UNIVERSITY

An adventure in education was undertaken last March in the American Expeditionary Forces in France, a real American university being founded at Beaune with 11 colleges, including a college of agriculture as well as a farm school. The United States Department of Agriculture and several of the State agricultural colleges have assisted the Army Educational Commission in organizing and conducting this new departure among soldiers.

The Federal department has contributed numerous lantern slides which are intended to entertain the American fighters, interest them in rural life, and give instruction in farming. Especially for this purpose the States Relations Service prepared and sent five sets of slides. In addition the Department has outlined lists of its publications, as well as publications of State agricultural colleges and standard books for use in various courses of study relating to agriculture.

The Department's Office of Exhibits has been informed that one of the four sets of agricultural exhibits sent to France for display at American camps has been assigned to Beaune, and it was expected it would be made use of by the agricultural part of the A. E. F. University.

The accompanying article, written in the latter part of April by F. W. Beckman, professor of agricultural journalism at Iowa State College, now with the American Army Educational Commission in France, is the first complete account of this American university to be received by the United States Department of Agriculture.

LIVE STOCK AN ESSENTIAL TO STRONG FARMS IN SOUTH

Raising of Feed for Animals Important in Coastal Plain Section

Animal Husbandry Official Tells Necessity for Tick Eradication, Fire Control, Pastures, Winter Feed, Loans, and Marketing

"Since the United States entered the Great War the southern farmers have had placed before them as never before the obligation of raising their own supplies of feed and food," said G. M. Rommel, Chief of the Animal Husbandry Division of the United States Department of Agriculture, in an address at a recent meeting of the directors of the Southern Settlement and Development Organization held in Baltimore. "The war has given tremendous impetus to the program for the development of balanced farming in the South and we need not fear that the increased prosperity which is coming to the southern farmers on account of the adoption of such policies will not in the majority of cases be permanent. The South will pass in time permanently from a one-crop system to a system of safe and balanced farming. In such a system live-stock feeding performs a most important function."

Assuming that as time goes on such problems as drainage, roads, and schools are given proper attention, Mr. Rommel suggested the establishment of a live-stock industry in the Coastal Plain of the Southeastern States depends on the eradication of the cattle-fever tick, the control of fire and development of pastures, the securing of an adequate supply of winter feed, the supplying of loans necessary to finance the live-stock business, and the improvement of transportation and marketing facilities.

Must Kill Last Tick

"While the problem of tick eradication may be regarded for the bulk of the Coastal Plain section as practically an accomplished fact we can not allow public interest in the matter to be relaxed for a moment until the entire infested area is completely cleared of this pest," Mr. Rommel said. "It is extremely difficult, if not perhaps almost impossible, to develop successfully cattle-ranching projects in tick-infested areas in the Coastal Plain."

The first step in developing cattle ranching, in Mr. Rommel's opinion, is fencing in area to be grazed. The next step is to install fire guards and stop the constant burning which now prevails in many southern sections. By placing cattle, sheep, and goats in such inclosures and grazing carefully without overstocking, grasses such as carpet grass and Bermuda, and legumes such as lespedeza, will spread and the range will improve. The question of winter feed is almost if not quite as important as that of pasture development. By compelling animals to go through the short southern winter with only such feed as they can pick up on the pastures now available a great deal of the gain made during the summer is lost. Cows become thin and weak, and heavy losses at calving time are common. Most of this loss can be prevented by a simple system of feed insurance, just as is practiced now on the best ranches of the West. The production of hay and silage and the use of cottonseed meal will commend themselves to the prudent ranchman.

Suggests Cattle, Sheep, and Goats

Mr. Rommel suggested that live-stock ranching in the Coastal Plain should follow two lines—cattle raising and sheep and goat raising.

"The foundation of cattle breeding in the Coastal Plain," he said, "should be the native stock, commonly known as the piney-wood cattle. While these cattle are small and of little value in themselves as beef cattle, they furnish about as good a foundation on which to breed up as the common cattle of the West in the early ranching days of 40 years ago. They are thoroughly acclimated and the cows as a rule make good mothers. Bred to good beef bulls with systematic methods, uniformity can soon be acquired. In fact, Hereford bulls will put white faces on 90 per cent of their progeny. The first cross will be extremely uniform; the second cross will show some variations. After the third cross, however, much more uniformity will be apparent and rapid progress will be evident, both in general appearance and size."

BUY PURE-BRED DAIRY STOCK

As a result of an auto trip arranged by the county agent of Mercer County, N. J., to see some dairy farms in the State, the dairymen of the county decided to cooperate and purchase pure-bred stock. A committee was appointed to make arrangements, local banks advanced the money, and a representative was sent to Michigan to select the cattle. A carload of pure-bred cows was secured and shipped to Mercer County. They were assigned by lot at actual cost in Michigan plus transportation. The prices ranged from $190 to $350.

POTATO WART MAY GET YOU—IF YOU DON'T WATCH OUT

DRAWN FOR THE WEEKLY NEWS LETTER BY G. D. GEORGE.

Need for Forest Conservation Shown at Second of Regional Conferences

The second of a series of regional conferences planned to consider the special conditions throughout the country, which must be studied to form a broad national policy of forest conservation, was held in Asheville, N. C., June 4. Forest problems of Kentucky, North Carolina, and Tennessee were discussed by representatives of these States and of the Forest Service of the United States Department of Agriculture.

It was the sense of the men in attendance that the Federal Government should take the leadership in bringing about through cooperation and assistance to the States such measures as may be necessary for the adequate protection of private timber lands and their renewal after cutting the timber.

Col. Henry S. Graves, Chief of the Forest Service, presided.

Ever since the settlers along the Atlantic seaboard pushed westward through North Carolina, Tennessee, and Kentucky; ever since Daniel Boone felled the trees that went into the first log house in the blue grass country, the smack of the woodman's ax and the crashing-down of monarchs of the forests have made an almost ceaseless refrain in these States endowed by Nature with woodlands of an expanse that seemed limitless. But they only seemed limitless. The woodmen are nearing the end of the trail. The forests of North Carolina, Tennessee, and Kentucky, along with the forests of all other States in the East, are rapidly being exhausted.

If the cutting-out of the forests goes on as it has gone on, and without any provision for preservation of part of them or for the growing of new forests, in a surprisingly few years there will be no lumber-producing forests left in the East. This is the statement of officials of the Forest Service. They realize that the situation will not be met by calling attention to the historic poem, "Woodman, spare that tree." They believe that a comprehensive program of forest preservation and renewal must be worked out cooperatively by the Federal Government and the States.

Important in Three States

These three States are regarded by Forest Service officials as among the most important forested States of the East. They produce great quantities of lumber and other forest products.

North Carolina, Tennessee, and Kentucky still have great areas of forest lands. Kentucky, with a total area of 25,715,000 acres, has 9,500,000 in forests; North Carolina, with 31,193,000 acres, has 18,000,000 in forests; Tennessee, with 26,679,000 acres, has 12,000,000 in forests. Thus, nearly half of the total area of the three States is in forests. If this great natural forest resource is not safeguarded, one of the most important supports of industry and springs of wealth in this section of the country will fail.

In point of fact, forestry officials say, it has already been seriously impaired, and the impairment is progressive. Many wood-using industries are confronted with the danger that local supplies of material necessary to their existence will soon cease to be obtainable. When woodworking establishments have to move or close down, local prosperity is dealt a hard blow.

Forest exhaustion in hardwood regions does not necessarily disclose itself in the form of decreased forest area. The land usually remains under tree growth, but of an inferior if not valueless character. The high-grade trees are cut out. In consequence, the forests deteriorate until their usefulness for the support of industries is gone. The only way to prevent this is by the application of forestry, which maintains productiveness through right methods of cutting and through fire protection.

Forest Exhaustion Indicated

The exhaustion of the forests in these three States is indicated by official Government figures of lumber production for 1899 and 1917—the latest year for which they are available. In 1899 the board feet cut in Kentucky totaled 765,343,000, which was 2.2 per cent of the total production in the entire country. In 1917 the Kentucky production, with a few small mills not recorded, was 329,203,000, or 1 per cent of the country's total production. For the same years Tennessee's production decreased from 939,463,000 to 582,003,000, or from 2.7 per cent to 1.8 per cent of the country's total. In North Carolina, however, the lumbermen were striking into the mountain forests in 1917, and the production for that State was 1,316,307,000, a slight increase over the 1,278,399,000 of 1899. The North Carolina percentage of the total American production was 3.7 per cent in 1899 and 4 per cent in 1917.

Industries Depend on Forests

North Carolina ranks high in woodworking industries. It has many furniture factories and extensive vehicle and implement plants that depend upon the native forests for their raw material. These industries were located within the State, because of the proximity of the forests. The same statements also are true in a slightly less degree of Kentucky and Tennessee. For the maintenance of these industries longer than a comparatively few years it is essential that the forests be not exhausted.

Other reasons why the forests of Kentucky, Tennessee, and North Carolina must be preserved are that many of the streams traversing them have their origin in the woodlands and depend upon them for their regular flow. If the forests are destroyed the streams are likely to have much water in some seasons and to be practically dry in the summer. In the wet seasons the water will rush off in floods—a condition that will destroy much of the value of the water-power development that has begun. Such a condition also would greatly increase the damage done by the washing away of soil.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for sheep husbandman, for men only, on July 8, 1919. A vacancy in the Bureau of Animal Industry, Department of Agriculture, Washington, D. C., at $2,500 a year, for duty in Washington, D. C., or in the field, will be filled from this examination. Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Open competitive examination for laboratory aid, motion-picture laboratory, for women only, on July 23, 1919, to fill two vacancies in the Division of Publications, Department of Agriculture, Washington, D. C., one at $720 and the other at $840 a year. Applicants should at once apply for Form 304, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

No matter how small the flock the droppings should be carefully saved, stored, and either used as fertilizer for plants or disposed of to persons who can so use them to increase the fertility of the soil.

Good food habits are an important part of personal hygiene and thrift. Children get such habits by having suitable amounts of suitable foods served them and then being expected to eat what is set before them.

Growing of California Sugar Beets Discussed by Department Specialists

To assist sugar-beet growers in deciding upon the best farm practices in raising a crop and determining the cost of production, specialists of the United States Department of Agriculture have made a study of four of the most important sugar-beet areas in the United States. The department has published four bulletins, one on each of the four areas studied, giving in detail the results of the investigations. The first bulletin deals with the Utah and Idaho area, the second takes up the work in Colorado, the third gives the results obtained in Michigan and Ohio, and the fourth, Bulletin 760, just issued, discusses the practices on 165 farms in three typical sugar-beet regions of California.

While the requirements of the beet crop in terms of value that prevailed through 1915 and 1916 are dealt with in the recent publication, the authors state that when such requirements are known the cost of producing sugar beets can be ascertained for any given crop year by substituting current rates for labor, seed, water, etc., for those given in the bulletin. The cost data, therefore, are valuable solely for purposes of comparison. While the suggestions are directly applicable to California districts, the authors believe that certain features relating to increased production will be found valuable to growers in other regions.

In two of the California districts, Los Angeles and Salinas, on the farms visited more than 50 per cent of the tillable land is utilized in growing beets, while in the other district, Oxnard, over one-third of the tillable land is devoted to this crop. The average acre yields for the three districts during the period covered by the study (1915–16) were: Los Angeles, 14.52 tons; Oxnard, 9.53 tons; Salinas, 15.59 tons. The cost per acre during this period was, for the Los Angeles region, $67.11; Oxnard, $54.88; and Salinas, $66.45. In general, the bulletin says, as acreage increases acre cost decreases, while as yield increases acre cost increases, although cost per ton decreases.

Labor Principal Cost

Labor was the principal cost item in the three districts, amounting to 50 per cent of the total cost of production, while the use of the land amounted to 35 per cent. The more important factors which enter into the cost of producing sugar beets are labor, interest on land or rental, seed, water, taxes, and insurance. While these factors expressed in terms of money values are variable, such items as hours of man labor, hours of horse labor, pounds of seed, hours of use of equipment, and amount of fertilizers required do not fluctuate appreciably.

Beet tops are usually plowed under in the Saminas area. They are of considerable value for fertilizing the land, the best results being obtained when they are evenly distributed over the field. After they are cut the tops are allowed to remain in the rows, but before the land is plowed they are scattered over the field with a harrow, one harrowing being sufficient. Farm manures are used in the California areas to enrich the soil, but they are exceedingly scarce.

Deep Plowing Needed

For the successful production of an intensive crop like the sugar beet it is necessary to have a deep, well-prepared seed bed. In regions where rainfall is limited and occurs mainly during the winter, as in California, it is especially desirable to practice deep fall plowing. This enables the soil to store large quantities of water during the rainy period and increases the yield by facilitating the development of a beet with a long tap root. On the farms included in the study the depth of plowing ranged from an average of 9.5 inches in the Salinas district to 11.5 inches in the Oxnard district.

After the seed bed had been further prepared by rolling, harrowing, and leveling the seeding was done from December 1 to June 1, the time varying according to localities. Cultivating ranged from February 15 to July 15, but in the Salinas district it was practiced chiefly in May, June, and July. The first cultivation preceded blocking and thinning. In the Los Angeles and Salinas areas irrigation is sometimes necessary, but usually only one irrigation is required.

Bluish Stems on Watermelons Not a Disease, But a Preventive

A woman who was about to buy a watermelon on an eastern city market recently noticed that the stem was covered with a bluish, starchy paste, which she took to be a disease. Otherwise the melon seemed to her a choice specimen of the melon growers' art. She could not, however, be persuaded to take it until she had looked over many others in the dealer's assortment and found that all were similarly "affected." Many careful buyers may have the same experience in buying watermelons this year, but they need have no fear of inferior quality because of the unusual appearance of the stem. It is not a disease, but a means of preventing one of the most serious diseases of watermelons which growers of the Southeastern States have to contend with in shipping.

This treatment, developed by the United States Department of Agriculture prevents stem-end rot, and consists in painting the freshly cut stem of each melon with a paste made of bluestone mixed with starch. The paste should be put on the stem only, but some growers, through carelessness or haste, may smear it on the rind, which lessens the attractive appearance but not the quality of the melon.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended June 7, 1919:

Commercial Preservation of Eggs by Cold Storage. Department Bulletin 775.

Digestibility of Some By-Product Oils. (Professional paper.) Department Bulletin 781.

Lessons on Dairying for Rural Schools. Department Bulletin 763.

Lessons on Potatoes for Rural Schools. (Professional paper.) Department Bulletin 784.

Prevailing Plans and Practices Among Farmers' Mutual Fire Insurance Companies, Department Bulletin 786.

Protection from the Locust Borer. Department Bulletin 787.

The Inspection of Butter under the Food Products Inspection Law, S. R. A. Markets 51.

Points for Egg Buyers—What to Sell—What to Buy—How to Candle—Egg-Candling Devices. Bureau of Chemistry, Department Circular 25.

Organization of a County for Extension Work—The Farm-Bureau Plan. S. R. S. Department Circular 30.

Report of Committee on Land Economics. Office of the Secretary, Circular 138.

Report of Committee on Farm-Life Studies. Office of the Secretary, Circular 139.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

The smallest back yard affords an opportunity to keep a few hens. Whether the occupant of the premises can keep those few hens to advantage depends upon whether he or she can and will give them the necessary care.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Anchored to the Home and Farm By Ownership of Property

One of the important aims of boys' and girls' extension work in agriculture and home economics, as promoted by the United States Department of Agriculture in cooperation with the State colleges of agriculture, is to help boys and girls at their homes, on the farms, and in the gardens to make profits from their club work, with a view to gaining property ownership of farm crops and products, pure-bred animals and poultry, kitchen equipment, and household furniture, farmland and town lots; to possessing bank accounts, and to buying Liberty and Victory bonds and war-savings stamps as investments.

The Department of Agriculture and the State colleges have discovered that one of the best means of improving agriculture and home life, as well as of developing a wholesome community atmosphere, is to give the young people of rural communities, towns, villages, and cities an opportunity to engage in productive and profitable enterprises, and to become proprietors, managers, and owners of things in connection with the farm and the home, in this way interesting them in and anchoring them to home life, most of them much longer than they would be otherwise, and many of them for life.

BOYS' AND GIRLS' CLUB OWNERSHIP—REPRESENTATIVES OF FOUR STATES.

	N.Y.	Mich.	Minn.	Ind.	Total.
Number furnishing data	240	195	210	400	1,045
Owning Liberty bonds	34	48	12	18	112
Owning war savings stamps	171	134	129	109	543
Having bank accounts	95	103	60	33	291
Owning 1 acre of land or lots	.....	22	10	.....	32
Owning pure-bred pigs	8	15	25	85	133
Owning sheep	.....	8	10	26	44
Owning pure-bred calves or cows	6	19	30	46	101
Owning poultry or poultry equipment	50	25	.....	62	137
Owning kitchen equipment	46	18	24	.....	88
Who intend to go to college	.....	.....	.....	.....	.....

Surveys have been made in four States with four groups of young people that give illustrations of how this works out. The young people were asked to report Liberty bonds, war-savings stamps, savings accounts, and property which they have been able to acquire and now own as the direct result of their club work. The foregoing summary is suggestive of the possibilities along this line. The one taken in New York State was from Chemung County; the three groups from Michigan, Minnesota, and Indiana were in attendance at the State college short courses, and represented all parts of the States.

Of 485 boys and girls engaged in club work in poultry raising, home canning, and pig raising in one community (Weston) in Massachusetts, 435 purchased war savings and thrift stamps, 165 purchased Liberty bonds, and 328 owned farm animals, land, kitchen equipment and household furniture, such as cook stoves, tables, chairs, bookcases, and canning equipment. These results were made possible by the club work.

ONE YEAR OF CANNING MAKES GIRL OF 14 A CLUB LEADER

Helen Findlen, a 14-year-old club member of Readville, Mass., is in her second high school year. She is the oldest of nine children. She walks 3½ miles a day to and from school.

She entered club work last year, joining the canning club. She canned only about 125 quarts, but her work was of such quality that she won the first prize in the town and second prize in the county as an all-round club member. She was one of the team to demonstrate at the Worcester, Mass. fair, and gave about six public canning demonstrations.

This winter Helen joined the home economics club and now she bakes all the bread for the family—five loaves every night.

The county leader organized a home economics club for the younger girls in the town and Helen has been a local leader for that club as well as a member of her own club. She fulfilled her duties so well in both capacities that she has brought through her club of 10 younger girls as a banner club, which means that every member completed all requirements.

About 1,150 counties in the Northern and Western States were organized last year for boys' and girls' extension work. The membership in the boys' and girls' clubs numbered 440,606, while 400,000 city boys and girls had gardens.

Car of Pure-Bred Pigs Bought For Club Boys and Farmers

When a carload of pure-bred live stock is brought into a county at one time it is a big step in the development of the livestock industry of that county. This is the case in Columbia County, Fla., where a carload of pure-bred Poland China hogs were recently purchased in Illinois through the American Poland China Record Association, and were distributed among pig-club members and farmers of the county. Over 400 people witnessed the distribution.

There were 55 fine young animals in the lot, 46 being sow pigs for club boys, and nine boars purchased by eight progressive farmers. The sows were divided into three classes, according to size and individuality. Eighteen in the first class sold for $45 each, 16 in the second class for $38 each, and 12 in the third class for $25 each. The pigs in each class were numbered and the boys drew lots for them.

Before the pigs were distributed short talks were made by the State club leader and others. The speakers praised the boys for the splendid beginning they were making, and urged them to give their pigs proper care and to continue in the livestock business.

PIG-CLUB MEMBERS MAKE GOOD RECORDS FOR SOUTH

Members of boys' and girls' pig clubs are the pioneers in introducing pure-bred pigs and improved methods of management in many parts of the South, where the swine industry is making unprecedented progress.

This is true in a marked degree in Georgia. Among the pig clubs, which are carried on by the United States Department of Agriculture, cooperating with the State extension division of the college of agriculture, the total sum represented by the hogs and pigs in the hands of the pig club members of the State last year was almost a half million dollars. The increase in the number of pure-bred pigs raised by the club members in 1918 over 1917 was more than 306 per cent. The increase in profits on hogs raised in 1918 over the previous year was more than 61 per cent.

Pig clubs were carried on in connection with school work in many localities.

Fourteen school pigs in one county, raised on the waste from pupils' lunch baskets, sold for $590 at an auction sale. Twenty-two schools in another county raised 22 pure-bred hogs last winter on waste from the pupils' dinner baskets. One town of 2,000 people produced 35,000 pounds of pork from pigs raised in back yards. The white boys of the same county raised $12,340 of meat hogs, and the Negro boys $2,134.85.

An all-cotton county reports an increase of 5,000 hogs in 1918. Fifty-seven pig club members in one county raised 250 head of registered Duroc-Jerseys. The amount invested was $2,300. At an auction sale 80 of the surplus pigs were sold, and the returns from the sale, together with the value of the remaining hogs, represented $7,800.

Pig-club members had a prominent part in the swine exhibits at the two fairs held in the State and carried off many prizes. Of the 2,105 hogs exhibited at the Southeastern fair, 345 were owned and raised by pig-club boys who won 31 ribbons in the open ring. Three of the prizes were junior champions. Of the 350 hogs exhibited at the State fair, 87 were owned and raised by pig-club boys who won 39 ribbons in the open ring and $272 in prizes. One of the ribbons was a junior champion. With 28 club pigs one county won 27 ribbons and prizes amounting to $817.50, including the State championship.

The State pig-club champion was the 11-year-old son of a small farmer who bought his pig at an auction sale for $37.50. At the end of the contest this hog was worth $300. In one county six pig-club boys, who started in their club work with one small pig each, will start hog farms this year. Three of these boys already have their hogs and land.

SEE PEACE-TIME USE FOR WAR-TIME CANNING

How a girl's canning club was organized to meet a war necessity and attained such desirable results that its members are determined to put what they have learned to peace-time use is told in the story of the Harvard Canning and Evaporating Club, of Harvard, Mass.

The club was organized by Miss Clara Endicott Sears in the spring of 1917 with a membership of 12 girls between 9 and 16 years old. The United States had just entered the war; and the girls, filled with patriotism and desiring to be of service, hoped to create an emergency supply of food for the soldiers at Camp Devens.

They worked under the direction of Mrs. Frederick S. Avery week after week throughout the hottest days of summer at home and at the club. The club outgrew its home town after a time, and rumors of its work reached other parts of the State. The supply officers at Camp Devens heard of it and investigated, and soon its fame spread throughout Massachusetts.

Products Sold to Soldiers

Toward the end of the season the club was invited to send an exhibit to the Eastern States Exhibition at Springfield, Mass., and was awarded a medal. This added zest to the work, and the girls redoubled their efforts as the day approached for the home exhibition at the town hall of Harvard. As soon as the doors were opened the whole club exhibit of canned and evaporated fruits and vegetables, consisting of 1,000 jars of canned and 200 pounds of dried product, was sold to Battery F, Three hundred and third Heavy Artillery, through Lieut. Martindale, the battery's mess officer.

In addition to the products sold at Camp Devens the girls reserved 1,000 quarts, canned at home, for family use.

When the season of 1918 opened, the club was eager to resume its work. A number of new members joined and the results of their second year outdid all expectations. Besides the regular work, large outside orders were filled for both canned and evaporated vegetables and fruits. Club exhibits were sent to the New England fair and to the Upton and Sterling fairs, at which prizes were taken.

Cash Profit Shown

A large exhibition, twice the size of the year before, was held in the town hall of Harvard at the close of the season, and after all expenses were paid a substantial sum was placed in the bank to the credit of the club. In February, 1919, there was a profit of $100 and about 1,320 jars of product to dispose of.

The season of 1919 is at hand, and the Harvard Canning and Evaporating Club stands ready to enlarge its activities. It realizes its responsibilities and will emphasize more than ever before the importance of encouraging and promoting the efficiency of the girls and women of the country in methods of conserving food. The club will begin its third year with a determination to make it the banner year.

HOW WEATHER BUREAU AIDED IN TRANS-ATLANTIC FLIGHT

As indicated in the Weekly News Letter for May 14, 1919, the Weather Bureau of the United States Department of Agriculture actively cooperated with representatives of the United States Navy in their successful attempt to cross the Atlantic Ocean by means of seaplanes.

Arrangements were made for the receipt of meteorological observations from Europe and the Azores, and, in addition, regular observations were made on ships at sea, under the direction of the Naval Meteorological Service. All of these observations, together with those regularly taken in the United States and Canada, were reported by radio four times daily to the central office of the Weather Bureau at Washington, D. C., and to the base ship *Aroostook* at Trepassey, Newfoundland. At the latter place these reports were charted and studied by a representative of the Weather Bureau and by a member of the Naval Meteorological Service, Lieut. R. F. Barratt, and statements, based upon this study and indicating the current and probable future conditions, were given to the commanders of the seaplanes. On the historic 16th of May these statements showed that conditions for the flight from Newfoundland to the Azores, although not perfect, were the most favorable they had yet been, and Commander Towers was accordingly advised to have everything ready for the start, providing the forecast from Washington was favorable. About an hour later this forecast was received. It also advised that the flight be made that day, but pointed out, as did the statement made at Trepassey, that cloudiness would be encountered near the Azores. The Trepassey statement included a table showing the wind assistance that would probably be received at successive points along the route. As is well known, the flight was started on that day, and one of the seaplanes, the *NC-4*, reached the Azores without mishap and ahead of schedule time. As had been predicted, weather conditions were excellent over the western part of the course, but cloudiness interferred with navigation to some extent near the Azores.

Reports since the flight was made show that at no time have conditions been as favorable as during those two days, and in general it may be said that occasions are rare on which ideal conditions would be experienced over as long a course as this. Not until improvements in aircraft have rendered them more independent of weather conditions than they now are will transoceanic flying be at all practicable, at any rate on anything like a regular schedule, the meterologists believe. There is little doubt, however, that such improvements will be made, and that within a few years flying across the seas will not longer be looked upon as an adventure, but rather as a necessary feature of the world's daily routine.

If you can't save the first dollar, you can't save the last. Invest every pay day in war-savings stamps.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

HEARINGS IN 15 CITIES ON GRAIN-WAREHOUSE RULES

Hearings in 15 cities on the proposed rules and regulations for grain warehouses under the United States Warehouse Act began June 9. Final hearings will be at Washington beginning July 10.

A draft of the proposed rules and regulations has been distributed to interested persons and firms, and together with the Warehouse Act forms the basis of discussions. The representations made at the several hearings will be taken into consideration by the Secretary of Agriculture in formulating the final rules and regulations to govern the warehouse service. Those who can not attend the hearings may send written communications in regard to the proposed rules and regulations to the Chief of the Bureau of Markets, Washington, D. C.

All hearings are presided over by the Chief of the Bureau of Markets, or other representative of that bureau.

The final hearings in Washington will be held in room 411 at 1358 B Street SW., beginning at 10 a. m. July 10.

The places and dates of the field hearings follow: June 9, New Orleans, La.; June 11, St. Louis, Mo.; June 13, Kansas City, Mo.; June 14, Omaha, Nebr.; June 17, Salt Lake City, Utah; June 18, San Francisco, Calif.; June 19, Boise, Idaho; June 21, Portland, Oreg.; June 23, Seattle, Wash.; June 24, Spokane, Wash.; June 26, Great Falls, Mont.; June 28, Fargo, N. Dak.; July 1, Minneapolis, Minn.; July 3, Indianapolis, Ind.; July 5, Buffalo, N. Y.

MAY SETS UP NEW RECORD IN FEDERAL-AID ROADS

During May the Secretary of Agriculture approved project statements for 124 Federal aid projects, involving the improvement of 750.87 miles of road at a total estimated cost of $15,120,771, and on which Federal aid in the amount of $6,382,081.28 was requested. This represents the largest number of project statements approved during any month since the passage of the Federal Aid Road Act.

During the month there were executed by the Secretary and the several State highway departments 81 project agreements, involving the improvement of 667.71 miles of road at a total estimated cost of $7,992,867.25, and on which $3,570,087.22 Federal aid was requested and set aside in the Treasury. In addition, agreements to cover 59 other projects were placed in process of execution during the month.

Up to and including May 31, 1919, project statements for 1,188 projects had been approved. The 1,188 projects involve 11,350.10 miles of road, a total estimated cost of $108,295,329.15, and a total of $43,076,176.63 Federal aid. On the same date 617 project agreements had been executed, involving 5,291.86 miles of road, at a total estimated cost of $47,426,749.49, of which $19,521,259.27 was from Federal funds.

MORE ACTIVE WOOL MACHINERY INDICATES RETURN TO NORMAL

Wool machinery in operation on May 1 shows an increase of about 10 per cent compared with April 1 of this year, according to the Bureau of Markets, Department of Agriculture, which reports that conditions are again approaching normal in the amount of wool machinery in operation.

Machinery used in making woolen yarns shows 83 per cent of cards and 83 per cent of spinning spindles in operation on May 1, compared with 73 and 72 per cent, respectively, on April 1. Active worsted machinery also shows increases with May 1 figures at 77 per cent for combs and 74 per cent for spinning spindles, compared with 66 and 64 per cent, respectively, on April 1.

Sixty-four per cent of looms were in operation on May 1, against 54 per cent on April 1 and 46 per cent on March 1 of this year.

HIDE AND SKIN STOCKS INCREASE

Increase in stocks of practically all classes of hides and skins held in the United States on April 30, 1919, as compared with the stocks reported at the close of the preceding month, are shown by the monthly report on hides and skins just issued by the Bureau of Markets of the Department of Agriculture. The increases are due largely to importations. The only classes showing decreases are whole hog skins, and deer and elk skins.

The principal stocks in the United States on April 30 were: Cattle hides, domestic 4,080,735, foreign 929,226; sheep and lamb skins, domestic 3,839,352, foreign 5,315,600; pig and hog skins, 135,784 pieces and 1,451,090 pounds in strips; horse hides, whole 85,548, fronts 52,300, butts 127,638, shanks 76,115; calf and kid skins, domestic 1,478,138, foreign 495,960; kangaroo and wallaby skins, 506,309; deer and elk skins, 155,016; goat skins, domestic 2,561,243, foreign 9,415,313; kid skins, domestic 105,974, foreign 528,508; cabretta, domestic 298,286, foreign 1,222,064; and buffalo hides 79,887.

GRADING OF GRAIN BY INSPECTORS

Federal grain supervisors, whenever conditions permit, visit mills and elevators in their districts. It should be remembered, however, that the actual inspection and grading of grain is performed in the first instance by the licensed grain inspector. It is without the jurisdiction of the officers of the United States Department of Agriculture to place an original grade or inspection upon any grain until it has first been inspected and graded by a licensed inspector, or unless it involves a dispute on uninspected grain shipped between noninspection points which has been properly referred to the Secretary of Agriculture for the determination of the true grade. Therefore, samples for original grading should not be sent to a Federal grain supervisor, but to a licensed grain inspector.

The school lunch offers a good opportunity to teach something useful regarding the selection and preparation of foods and of the simpler principles of nutrition, particularly in cases where the lunch is prepared in the school, a practice which seems to be increasing in popularity.

PRESERVE EGGS NOW FOR USE WHEN THEIR COST GOES HIGH

Water Glass and Limewater Methods Are Best, Experiments Show

Boiled Water in Earthenware Jars Gives Best Results; Other Containers Not So Efficient; Two Methods in Detail

Experiments in preserving eggs conducted by the United States Department of Agriculture in the past year obtained best results from a 10 per cent solution of water glass—that is, one part of commercial water glass added to nine parts of boiled water. Good results were obtained with a slightly weaker solution, using 1 part of water glass to 14 parts of water. Better results were obtained when the water was boiled than when unboiled water was used.

Earthenware Jars Best Containers

In a test of different containers the earthenware jar gave by far the best and most satisfactory results. Softwood containers, such as candy pails, did not give satisfactory results, while hardwood containers, such as kegs used for cider and other beverages, gave much better results than the softwood pails, but did not begin to compare with the earthenware crocks. Even the hardwood kegs gave considerable trouble on account of leakage, and had to be watched constantly, which made them unsatisfactory. Galvanized metal containers similar to new garbage pails were also used with success, but were not quite so satisfactory as the crocks.

Tests with solutions other than water glass were made, and limewater, both with and without salt, gave satisfactory results. Where unslaked lime is more readily available than water glass the limewater method is an excellent one to use and is cheaper than the water glass. Tests in which the eggs were coated with wax and soap and other coating material did not give nearly so satisfactory results as when the eggs were kept in a solution.

Directions for the use of water glass and limewater are as follows:

Water-Glass Method

1. Select a 5-gallon crock and clean it thoroughly, after which it should be scalded and allowed to dry.

2. Heat a quantity of water to the boiling point, and allow it to cool.

3. When cool measure out 9 quarts of water, place it in the crock, and add 1 quart of sodium silicate, stirring the mixture thoroughly. This will be sufficient to preserve 15 dozen eggs, and will serve as a guide for the quantity needed to preserve larger numbers of eggs.

4. The eggs should be placed in the solution. If sufficient eggs are not obtainable when the solution is first made, more eggs may be added from time to time. Be very careful to allow at least 2 inches of the solution to cover the eggs at all times.

5. Place the crock containing the preserved eggs in a cool, dry place, well covered to prevent evaporation. Waxed paper covering the top of the crock and tied around it will answer this purpose.

Limewater Method

Pour a small quantity of water on 1½ pounds of unslaked lime and when this is thoroughly slaked add 5 gallons of boiled water. Allow the mixture to stand until the lime settles. Then pour off the clear liquid, add 1 pound of salt and use this for preserving the eggs, throwing away the sediment in the bottom of the receptacle. Use the same directions as recommended for the water glass for putting the eggs in this solution.

Fresh, clean eggs, properly preserved, can be used satisfactorily for all purposes in cooking and for the table. When eggs preserved in water glass are to be boiled, a small hole should be made in the shell with a pin at the large end before placing them in the water. This is done to allow the air in the egg to escape when heated and to prevent cracking.

Eggs will keep from 8 to 12 months in good condition, but are better up to the sixth or seventh month. Dirty or cracked eggs should not be put into the solution. Water glass costs about $1.20 a gallon, making the cost of preserving eggs with this material about 2 cents a dozen for the water glass. Water-glass solution should not be used again the second year unless it has kept quite clear and no odor or thick sediment has developed. The use of limewater is much cheaper than the water-glass method.

FARMING SCHOOL IS INCLUDED IN NEW UNIVERSITY OF A. E. F.

(Continued from page 2.)

as a relief from military routine, but one of them said, "We men who don't know much about agriculture and haven't had much sympathy with it have had an interesting time and we've gotton a viewpoint that will do us good."

Those 14 institutes held 92 sessions with a total attendance of 27,930, an average of 307 per session. It is estimated that 10,000 different men were reached. This kind of a program has been repeated again and again in other sections of the A. E. F., and at least 150 speakers are now giving time to it.

Study Live Stock on Farms

In many units of the A. E. F. farmer soldiers have a chance to go to agricultural schools, which maintain courses of 6 to 12 weeks, and give instruction in several fundamental studies in agriculture. They are called post and division schools. They are usually under the general supervision of representatives of the commission, although the principals and the teachers are from the Army. They are held in all sorts of places wherever rooms and equipment may be found. In Germany abandoned agricultural schools in the occupied territory in some instances have been taken over. Even the land surrounding such schools has been made use of for practical work with crops, soils, and gardens. Sometimes live stock is secured for judging, but usually the classes are taken to near-by farms for study and observation of the live stock found there.

Forty Studies Offered

The college of agriculture at Beaune has an enrollment of 800 students, a fine lot of men of representative agricultural college type, coming originally from all of the States. Forty different studies are offered them, grouped in four general departments — animal husbandry, agronomy, horticulture and forestry, and rural economics and sociology. In addition supporting subjects are offered in the other colleges of the university.

Instruction is carried on in much the same manner as in the United States, except where necessity has compelled a curtailment of laboratory work. Yet the Army has produced much laboratory equipment and some live stock at hand for judging. Numerous field trips to French farms and forests are helpful in supplementing classroom work. The faculty and administrative staff number something over 50 men; each line of work is in charge of a man who has had successful experience in it in some American college.

In the farm school at Allerey, near Beaune, there is an enrollment of 2,500 men. This institution is devoted wholly to agricultural instruction which combines class training with practical work on the 350 acres leased for the school. There is a large equipment of live stock and farm implements of all kinds.

Agricultural Colleges Represented

The men from the agricultural colleges of the United States associated with Dr. Butterfield represent the various lines of agricultural education. Dr. Harry Hayward, of Delaware, is director of the college of agriculture; Capt. E. N. Wentworth, formerly of Kansas and Iowa, is associate director. Others who are here are A. E. Arnette, of Nebraska; D. H. Otis, of Wisconsin; Leland Call, of Kansas; C. L. Fitch, of Iowa; Alexander Cance, of Massachusetts; Ernest B. Bab-

cock, of California; John Lee Coulter, of West Virginia; Arthur C. McCall, of Maryland; John C. McNutt, of Ohio; Laurence H. Parker, of Massachusetts; Walter M. Riggs, of North Carolina; W. M. Perrisho, of South Dakota; Howard J. Baker, of Connecticut; Stevenson Fletcher, of Pennsylvania; Lincoln W. Barnes, of Colorado; Harlan P. Douglas, of the American Missionary Society; Warren H. Wilson, of the Presbyterian Home Mission Board, and Henry S. Curtis, of Wisconsin. From the Army something more than 150 men have been selected for agricultural work, representing 40 different agricultural colleges of the United States.

Idea's Worth Demonstrated

The development of the program of the commission along all other lines as well as in agriculture is nothing short of a wonder growth. It has had its delays and discouragements and not everything planned has been accomplished, but none the less the undertaking has already produced results worth while. For one thing the Army has been convinced of the feasibility and desirability of an educational system operating with the Army during the period of a young man's enlistment and that fact lies back of the transfer of the commission and its staff to the Army April 16. The Y. M. C. A. demonstrated the feasibility of the educational program and the Army was therefore ready to take it up.

The Y. M. C. A.'s task was to take the vision of the few men who projected the Army educational idea, make it a reality, and carry it through its experimental stages. It provided money, men, and materials for establishing the educational work in the A. E. F. at a time when the Army could not provide any one of these essentials. But now that the Army is able to provide them, the responsibility for the program, it was mutualy agreed, logically belongs to it.

Results Will be Large

The immediate results of the educational program of the commission are worth while, but farseeing men expect even greater results in the future. Secretary Baker in his address at the university to-day expressed this expectation when he said that he believed that out of the commission's work would come a permanent educational policy for the Army, combining military training with training for the vocations and professions of civil life. Agriculturally, the immediate results will be large, for the farmer-soldiers of the A. E. F. are being stirred to a full realization of their opportunities and their obligations in the rural field. They are thinking as they never thought before about rural tasks that await them back home and they are likely to return to them better qualified to-day to deal with them and with a new spirit toward them.

COST OF PRODUCTION TO BE STUDIED IN LARGE WAY

(*Continued from page 1.*)

under way and preparations are being made for taking up new lines of work as rapidly as possible, the Secretary states. Four separate conferences of authorities on specific subjects have been held, and the reports of these conferences have been published.

The object of the investigations relating to farm organization is to develop the economic principles which underlie the management of a farm with a view to secure a maximum profit through a long series of years. The principal topics to be considered are types of farming, size of business, farm plans or layouts, eeffctive use of labor and equipment, intensity of production, and business methods.

Under "Farm Finance and Farm Relations" attention will be directed to credit, insurance, and taxation from the standpoint of their influence upon the activities of the farmer.

To Study Farm Labor

In connection with the farm-labor studies consideration will be given to such matters as trend of population, supply and movement of farm labor, as well as living and housing problems connected with the hired man. The subject of standards of supervision and compensation of farm labor also will be studied.

Agricultural history and geography will involve a study of the treand of agricultural development, the relation of climate, soil, and other geographic conditions to farm enterprises, farm operations, and types of farming.

Land economics (land utilization), dealing with problems which become more acute every year to the farmer and to the Federal and State Governments, will include, according to the recommendations of a special committee, studies of land resources, land values, land ownership and tenancy, land settlement and colonization, and land policies.

For Better Rural Life

Farm-life studies are to be conducted with a view to make living conditions in the home and in the community more satisfactory to the farm family. A special conference on the subject recommended that information be obtained regarding rural-home life; opportunities for social contacts in typical rural communities; relation of educational and religious institutions to farm-life problems; problems relating to geographical population groups, such as the relation of urban and rural populations, shifting of rural populations, and race elements in rural population; social aspects of tenancy and landlordism; rural organizations, their efficiency, scope, causes of success and failure; social aspects of various types of farm labor—the married and unmarried farm hand, seasonal labor, child labor; relation of various forms of disability; social consequences of local disasters due to natural causes; and social consequences of thrift and agencies for promoting thrift.

Demonstration activities (extension work), in cooperation with the States Relations Service, are planned to carry to the farmer on his own farm the facts developed in the farm management and farm economics investigations for "better farming, better business, and better living."

BOYS BUILD PIG SELF-FEEDERS

Pig club boys, as well as a number of hog breeders of Madison County, Fla., are beginning to use self-feeders for hogs. The local county agent now has requests from about 30 club members for assistance in building feeders. The first self-feeder in the county was built by two brothers, who had been members of the pig club for three years. They began their club work with one pig each, have become enthusiastic, and now have a herd of 65 pure-bred Durocs. Since the pig club was organized in the county three years ago, pigs have been placed with 228 boys.

STOCKMEN SUPPORT COUNTY AGENTS

This year's State convention of the stockmen of Washington was in every respect the most successful meeting of live-stock owners and breeders held in the Northwest in many years. Plans were made, and are now being carried out, for developing the Spokane stock yards and for building up a live-stock exposition at Spokane.

County-agent work was supported and encouraged by resolutions urging all stockmen to assist in having their county commissioners make adequate appropriation for maintaining county-agent offices in each county in the State.

In choosing pullets for small back yards very light-colored and white birds should be avoided as their plumage shows dirt too readily. Where the soil of the yard is clayey, pullets with feathers on the legs and those with more than four toes on each foot should be rejected.

FALL FERTILIZERS SHOULD BE 30 PER CENT LOWER IN PRICE

Department's Understanding with Trade Affects Northern States

Southern Prices Yet to Be Announced; Schedule Based on Orders of 30-Ton Lots and Delivery in 167-Pound Bags

As the result of the Department of Agriculture's conferences and communications with individual manufacturers of fertilizers, without the department having fixed any prices, it is now in a position to announce that the farmers of the country should obtain their mixed fertilizers for the fall season of 1919 at an average price of about 30 per cent lower than the prices which prevailed for the spring season just passed.

This statement applies to the territory north of Arkansas, Tennessee, Virginia, and West Virginia, but including the Ohio River counties of West Virginia, Fertilizer prices for the Southern States have not yet been put out. Statements concerning other territory will be issued as soon as prices are made.

The different companies in some instances will put out goods at slightly varying figures, but the accompanying table shows maximum f. o. b. prices at which the principal fertilizer grades at the three great centers for fertilizer distribution—Baltimore, Md., Philadelphia, Pa., and Carteret, N. J.—to dealers and to farmers ordering 30-ton lots may be obtained.

Competition May Lower Price

These prices are to dealers and to farmers ordering 30-ton lots and are based upon delivery in 167-pound bags. If in 200-pound bags 25 cents per ton should be deducted, in 125-pound bags 25 cents per ton, and in 100-pound bags 50 cents per ton should be added. These prices are subject to a discount of 5 per cent if paid in cash on December 1 and a further discount of one-half per cent for each month in advance of that date. These are maximum prices and competition in the trade may make prices lower.

The fertilizer trade conditions provide that these f. o. b. rates shall apply to New Jersey, Delaware, Maryland, and approximately the eastern half of Pennsylvania. In the Middle Western territiry, including New York, western Pennsylvania, and the Ohio River counties of West Virginia and west to the western Missouri and Iowa boundary lines, $3.75 per ton will be added for freight to any railroad delivery point; to Long Island delivery ponits $2.50 per ton will be added; and to New England $4.50 will be added to rail, water, or trolley delivery points. In addition to the prices quoted to New England points there will be added $3 per ton for shipments in less than carload lots, from which a deduction is made of $1 per ton if a carload is ordered; $2 per ton in the event of two carloads and up to 99 tons; $2.50 for 100 to 199 tons, and $2 for 200 tons and over.

FERTILIZER PRICES

Maximum F. O. B. Prices at Which Principal Grades May be Obtained in 30-Ton Lots at Three Trade Centers

Ammonia NH_3.	Phosphoric acid P_2O_5.	Potash K_2O.	Price per ton.
0	− 8	−3	$25.75
		4	28.75
		5	31.75
0	− 9	−2	23.75
0	−10	−1	21.75
		2	24.75
		3	27.50
		4	30.50
		5	33.50
0	−12	−1	23.50
		2	26.50
		3	29.50
		4	32.25
		5	35.25
1	− 8	−0	22.00
		1	25.00
		2	28.00
		3	30.75
		4	33.75
		5	36.75
1	− 9	−0	23.00
		1	25.75
		2	28.75
		3	31.75
1	−10	−0	23.75
		1	26.75
1	−12	−0	25.50
		1	28.50
2	− 8	−0	27.00
		1	30.00
		2	33.00
		3	35.75
		5	41.75
2	− 9	−1	30.75
2	−10	−0	28.75
		1	31.75
		2	34.75
		4	40.00
		6	46.50
2	−12	−0	30.50
		2	36.50
3	− 8	−1	35.00
		2	38.00
		3	40.75
3	− 9	−1	35.75
3	−10	−0	33.75
		1	36.75
		4	45.50
		6	51.25
4	− 8	−0	37.00
		1	40.00
		2	42.75
		2	45.75
		4	48.75
		6	54.50
4	− 9	−1	40.75
4	−10	−0	38.75
		1	41.75
		2	44.75
		3	47.50
		6	56.25

It is understood, of course, that to farmers ordering less than 30-ton lots there must also be added to these prices a fair profit to the dealer, which usually amounts to about $2 per ton.

Department's Aims Explained

The purpose of the department in issuing this statement is threefold: First, to reflect the action of the department in dealing with the fertilizer trade under the terms of the Food Control Act, approved August 10, 1917, and the President's regulations dated February 25, 1918. Second, to furnish to dealers and to farmers reliable information as to the maximum prices at which they may obtain their fertilizer supplies. Third, to prevent, as far as possible, the wide variations in prices paid by farmers to dealers for fertilizers delivered during the spring.

The matter of supply and prices of unmixed fertilizer material available to farmers for direct application to the soil or for home mixing, such as nitrate of soda, sulphate of ammonia, ammonia, the organic ammoniates, acid phosphate and potash salts, is still under investigation by the department. With the exception of acid phosphate, none of these standard materials are produced by the fertilizer manufacturers, although some of the ammoniates are produced by companies of which the fertilizer companies are subsidiaries. As these materials constitute on the average about two-thirds of the cost of mixed fertilizers, and as much of this material is not produced by the fertilizer manufacturers, it is an important subject for investigation by the department, both as influencing the price of mixed goods and as material, which the farmer may wish to purchase direct. It is a difficult subject of investigation because it is dependent upon so many industries in which it is a by-product, and is influenced by so many factors.

The department is also giving consideration to the differential in delivery rates in different parts of the country which have prevailed in the fertilizer trade for some years.

The health and comfort of the home depends to a considerable extent upon the heating apparatus, which in importance is second only to that of sanitary plumbing.

BUILDING NESTS FOR HENS

Nests should be situated in a more or less dark place, for then the hens will be less apt to eat the eggs. A good place is directly beneath the roost platform, with the nests so arranged that the hen enters from the side toward the wall. Each nest should be from 12 to 14 inches square, and high enough (about 12 or 14 inches) to be convenient for the hen to enter. The partitions between the nests should be high enough to prevent the hens from rolling the eggs from one nest to another, and low enough to permit hens to go from one nest to another, otherwise they will fight and eggs will be broken. Fine hay or straw makes a good nesting material.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

"Let's Make It a Million!"

A million members next year in the farm bureaus of the 33 northern and western States is the goal set in a notice to county agent leaders and county agents by the United States Department of Agriculture. Reports show that on April 1 there were 409,841 farm bureau members in these States, with 8,575 community committees—nearly a 30 per cent increase since the December, 1918, report, despite the influenza epidemic which handicapped membership campaigns.

"According to the 1910 census," says the notice to county agents, "there were 3,262,955 farms in the northern and western States. With one-third of the farms represented in the farm bureaus they could be truly said to be fairly representative. Farmers should not be coaxed or scared or fooled into the farm bureau. The organization is an appeal to their intelligence and their memberships should be solicited on a thoroughly dignified, common sense, business basis. Now is the time to make plans for the annual membership campaigns for next fall and winter. Some of the States may wish to do this on a state-wide basis."

Disease Losses Decreased

Every kind of farm animals had a mortality from disease during the year ending in the spring of 1919 below the average of the preceding ten years, with here and there a State that did not conform to this general fact for the United States. The reporters of the Bureau of Crop Estimates, United States Department of Agriculture, give to horses and mules a loss from disease amounting to only 1.57 per cent in the preceding year, the ten-year average being 1.91 per cent; cattle, 1.73 per cent, compared with 1.98 per cent; swine, the low rate of 4.14 per cent, compared with 6.68 per cent; sheep, 1.97 per cent, compared with 2.39 per cent; and lambs, the low rate of 4.83 per cent for losses from disease and exposure, compared with the eight-year average of 5.76 per cent.

On account of exposure, the cattle losses of the preceding year, 1.58 per cent, are above the ten-year average of 1.43 per cent; but the sheep losses of 2.51 per cent were below the average of 2.86 per cent.

In number of animals, the farm horses lost from disease during the last year were over 415,000; cattle, from disease and exposure, nearly 2,247,000; swine, from disease, nearly 3,128,000; sheep, from disease and exposure, nearly 1,606,000. The money loss due to these mortalities is not reported, but, computed at the average head value for all animals of each kind, the aggregate would amount to more than $200,000,000.

How Club Members Use Earnings

What do club boys and girls do with the money they earn in their work? It is a question frequently asked by persons who have read of their profits. The question was asked approximately 350 boys and girls at the first annual club roundup of Indiana boy and girl club members, held recently at Purdue University in cooperation with the United States Department of Agriculture. It was found that 58 of those present owned Liberty Bonds, which they had purchased with their own earnings; 109 had War Savings Stamps; and practically every one had bought Thrift Stamps. Thirty-three had started bank accounts with the money they had made in raising corn, pigs, calves, or poultry, selling canned products, or from some other branch of club work. Eighty-five owned pigs, 46 owned calves, 26 owned sheep, and 62 owned poultry. Definite plans to attend college by use of money from club work had been made by 117. It was found that of the 350 attending the meeting, 176 had been engaged in club work two years; 70, three years; 9, four years; and 4, five years.

Better Care of Sheep Pays

Seven farm sheep demonstrations were held last year in Missouri—flock owners cooperating with sheep specialists of the United States Department of Agriculture and the State agricultural college—the results of which, among other things, showed that it pays well to give sheep proper care. In two of the demonstrations, where grade animals were kept, one flock produced 108 per cent of lambs, which means that some of the ewes had twin lambs, while the other flock produced only 59 per cent of lambs, which means that a large number of the ewes did not produce any or that the lambs were too weak at birth to be saved. The wool from the first flock was sold at 66 cents a pound, while the wool from the second flock brought 64 cents a pound. The cost of feed of the first flock amounted to $7.05 for each animal, while the sheep of the second flock were fed at a cost of $1.34 each. The total cost, in the first flock amounted to $8.36 an animal, as compared to $2.57 for the second flock. But the net profit a head—the point which is most important to all sheep raisers—was $5.74 in the first flock as compared to $2.22 in the second flock, and the net return on the investment amounted to 21.77 per cent in the first flock as compared to 15.23 per cent in the second flock.

Much Rodent Poison Used

In one March order the Montana State Agricultural College sold 15,000 pounds of rodent poison bait to county farm bureaus of the State. The State college has erected a special building where the gopher poison bait is mixed and sold at cost, averaging about 15 cents a quart. The county agents are cooperating with the college and are obtaining bait for rodent control campaigns. Where there are no county agents orders are handled by local farmers' organizations.

"Egg Day" in Oregon

The farm bureau of Jackson County, Oreg., is operating in three districts of the county an egg marketing plan that is meeting with success and winning the cooperation of the business interests of the county. A certain day each week is known as "egg day," when farmers deliver their eggs to a central place, where they are candled and cased, the actual cost of the candling and crates being charged against the farmer according to the number of eggs that he brings to market. The eggs are then sold to the highest bidder, and have brought an advance of from six to eight cents a dozen over the prices received before this plan was used.

Hot Lunches Served in Schools

School lunches have been established in 73 rural schools of nine Indiana counties where home demonstration agents have been at work. By this means 3,237 school children in the past year have been served with at least one hot dish at noon. The immediate aim has been to improve the physical and mental condition of the children and to educate them to the value of milk, vegetables, and fruit in their diet. The ultimate aim is to convince the school authorities of the

importance of a hot lunch to a child. One home demonstration agent found on a second visit to a group of 370 pupils that 175 reported they were drinking more milk, 144 ate more fruit, 13 ate more vegetables and 80 were bringing milk to school as part of their luncheon.

They Canned the "Sas" in Kansas

Kansas boys and girls, 4,386 strong, enrolled last year in clubs organized to conserve surplus fruits and vegetables. The result was 521,910 quarts of canned food products and 31,050 quarts of jelly. The total estimated valuation was $268,555.80. The amount would have been larger but for the dry summer and the consequent shortage of fruits and vegetables in the State. These clubs for young people were organized cooperatively by the United States Department of Agriculture and the Kansas State Agricultural College. All Kansas is behind the work that the boys and girls are doing in the clubs. This spring the Kansas Bankers' Association paid the expenses of 15 club members—State project winners of 1918—to the "Farm and Home Week" held at the Agricultural College, Manhattan.

Good Year for Honeybees

Honeybees had a favorite winter in 1918–19 and began this year with promising auspices, according to investigations by the United States Department of Agriculture's Bureau of Crop Estimates. The winter losses of colonies were 9.4 per cent, with which may be compared 18.7 per cent in 1917–18 and 11.4 as the average for the preceding three years.

In the spring of this year the number of working colonies was almost 9 per cent above the number of 1917, and their condition is the best of the last four years. Honey plants, also, have a high condition.

Poultry Profitable Sideline

A net return of nearly $300 in two and one-half months from a sideline on the farm is the record made by a Glendale, Ariz., poultry raiser, who is carrying on his operations under the direction of a poultry extension expert of the United States Department of Agriculture. In connection with his general farm work he kept a flock of 210 hens, which produced an average of 10 dozen eggs during the four winter months. During February the eggs brought an average of 55 cents a dozen, or approximately $150, while the feed bill, including the feed for the young chicks, amounted to $50. The following month the flock showed a profit of a little over $100. During the first half of April the gross receipts were $97.50. In April the extension specialist conducted a culling demonstration on this farm and weeded 56 hens from the flock. The culled hens were kept in a separate pen for a week following the demonstration, and made practically no returns in egg yields. This indicates, the specialist says, that the remaining 154 hens probably made the record with which the entire 210 had been credited.

Better Beef Cattle Replace Scrubs

Better beef cattle are replacing scrubs in many parts of the South and are paving the way for the future prosperity of the live-stock industry in that section. An example of such progress is reported by the agricultural agent of McCormick County, S. C. Since December 1, 75 head of breeding animals have been placed on the farms in this county, largely through the efforts of agents, and there is every prospect that other farmers will start in the beef cattle business. Apparently, the agent reports, the time is not far distant when McCormick County will have good cattle grazing on excellent pasture land along the rivers. More pigs also are being raised in the county, as the agent reports that he finds good brood sows and litters of fine pigs on many farms where three years ago the owners in the spring bought pigs from which to make their meat in the fall.

Standardizing Live-Stock Breeds

The farm bureau of Grafton County, N. H., is demonstrating how such an organization can help develop community enterprises. The community chairman in Orford found that fifteen farmers in his immediate vicinity owned pure-bred Berkshire hogs. He felt this was a good foundation for standardizing the swine of the community, and asked the county agent for assistance in strengthening and extending interest in one breed. He arranged a meeting at which the county agent set forth the advantages of communities specializing in one breed. As a result the farmers formed a breeding association and voted to hold a sale of registered stock each year. Many examples show the value of a community breeding a certain line of stock rather than each member of the community proceeding along his own individual line, says the United States Department of Agriculture.

Marquis Leading Spring Wheat

The Marquis variety of wheat has gained on other varieties of spring wheat, year by year, until in 1918 it was more than one-half of the spring wheat crop. As estimated by the Bureau of Crop Estimates of the United States of America, the Marquis variety was 59 per cent of the spring wheat crop in Minnesota, 47 per cent in North Dakota, 58 per cent in South Dakota, and 47 per cent in Montana.

Durum wheat, in demand for regions of low rainfall and with a special market as a material for such products as macaroni, was second in popularity in 1918 in North Dakota, South Dakota, and Montana, where it produced 29, 20, and 15 per cent, respectively, of the total spring wheat crop. This variety of wheat has the advantage of large productivity per acre, a quality possessed almost in equal degree by the Marquis variety.

The Velvet Chaff variety had second place in Minnesota with 22 per cent of the total, third place in North Dakota with 9 per cent, third in South Dakota with 12 per cent, and fourth in Montana with 2 per cent.

Third place was taken by Blue Stem in Minnesota, and this variety produced 12 per cent of the spring crop; it was of small use in North Dakota, South Dakota, and Montana, as were Fife and other varieties.

NO PLACE FOR TENDER DOBBINS

Most farmers on western irrigation projects do not as yet raise their work stock, but have purchased horses and mules largely from railroad and other contractors who have completed their work. Farmers on the southwestern projects are obliged to use the small Mexican mules and the small but hardy native stock, because work animals from northern climates are unable to endure hot summers. Irrigation farmers recently have recruited their work stock at sales at Camp Cody, N. Mex., and Camp Kearny, Calif. Most of the work horses and mules from these sources have been desirable and worth the money.

FARM IMPLEMENTS DEMONSTRATED

The county farm bureau of Franklin County, Ind., cooperating with the bureaus of Dearborn, Decatur, and Ripley Counties, recently held a farm-implement demonstration at Batesville. Seven portable limestone pulverizers, 7 lime spreaders, 13 tractors, and 1 tile-ditching machine, all furnished by different companies, were used. Two short addresses were given each day by experts in soil management, liming, and tiling. This event was attended by 4,000 farmers and they were much impressed with the need of limestone in acid soils and the tiling of undrained land.

The more properly and regularly all refuse of the household is harmlessly disposed of the better for the healthfulness and comfort of the home.

Weevils Enter Beans from Eggs on Skins; Growers Can Save by Watching Signs

When a bean broker in Habana receives a consignment of beans or peas he samples carefully many sacks of them. If he finds a single weevil egg he says to himself, "There are weevils in this lot of seed. I must sell them soon or take a loss." Experience in a warm climate where bean weevils multiply rapidly has taught him to look for weevil signs—minute eggs attached to the beans. With true business acumen he makes the consignor knock off something from the price to cover the cost of fumigation or a loss due to immediate or early sale.

Nature writes her signs large for those who know how to read them. Part of the work of the United States Department of Agriculture is to study these signs and pass their meaning on to farmers.

Detect Weevils by Their Signs

Just as the peach grower can tell by a mere examination of the buds during the fall whether or not his trees will blossom well the following spring, so can the grower of beans and peas tell if his seeds will be weevilly before the plants mature in the field. Weevils do not come "from the air" or develop "from the germ" of the seed by "spontaneous generation," as many think. These false beliefs have grown out of the fact that round weevil holes appear in beans and peas that appeared perfectly sound when stored.

How could a weevil eat his way out of a sound bean if he did not develop "from the germ" or "spontaneously" within? Otherwise, how did he get into the bean in the first place?

Right there is where nearly all who handle beans and peas make their mistake. They never see the hole by which the weevil entered. They do not realize that bean weevils, like animals, grow; that they enter beans and peas when they are young and very small and leave when they are full grown. It is common sense that they enter by a very small hole and leave by a larger one.

Life Cycle of Bean Weevils

Because there are several stages in the life of an insect "from the cradle to the grave," its existence is known as a "life cycle." Each weevil passes through the egg, worm, and pupa stages before it is fully grown or adult. The adult lays its eggs on the pods, or on the seeds, or loosely among the seeds. When the weevil grub, or worm, is ready to hatch from the egg, it eats a hole in the side of the eggshell next to the skin of the bean or pea. It then burrows straight through into the bean.

The empty eggshell remains attached to the bean unless it is rubbed off in handling. If it be rubbed off, the tiny hole by which the weevil entered the seed can be seen. For a short distance the worm burrows into the pulp of the bean, making a tiny streak no larger than a pin prick. But as it feeds it grows, and the cavity becomes larger and larger. It eats out the substance of the beans like a cancer hidden from sight in the human body. It has jaws with which it gnaws out the cavity as it eats the seed tissues.

When the worm becomes as large as is its nature to become, it turns into a pupa. It makes a frail cocoon or cell out of the chewed-up parts of the bean right in the cavity where it has been feeding. After it has remained a time in the pupal stage it transforms to the male or female adult. The adult weevil eats its way out from cocoon and seed, leaving behind the round hole in the seed so familiar to all bean and pea growers.

Weevil Signs in the Field

The weevil lays its eggs on maturing green pods of the bean and pea. The eggs appear as mere white specks. An examination of the ripening pods will show whether or not there are weevils present. If many eggs are present, plans must be made for a campaign against weevils when the seeds are harvested and put in storage.

When the weevil eggs laid in the field upon the pods hatch, the young worms burrow through the pod into the bean, leaving the eggshell on the pod. So the first indication of the presence of weevils are the tiny holes in the new crop. When the eggs are laid on the beans in storage, the shell sticks to the bean and is easily seen. When one learns to look carefully for both the tiny entrance holes and the shells there is little difficulty in detecting weevil infestation.

Of course, these entrance holes are so very small that a person with poor eyes or one not looking for weevil signs will pass them unnoticed. He will purchase a consignment of seeds as sound because they appear outwardly sound, only later to find them weevilly.

Weevil eggs on dried seeds are laid by the generation of adult weevils following the generation laying eggs in the field. If weevilly beans and peas are placed in storage and the weevils are not killed, the adult weevils emerge and lay eggs on the beans in storage. These eggs are easily seen.

And so it happens that the signs by which weevils reveal their presence in beans, peas, cowpeas, broad beans, lentils, and related crops can be easily seen by anyone who looks carefully. The gardener has only to examine the ripening pods. It does not take much time as he rests from his labors, and he has the satisfaction of knowing a new secret of nature, besides sparing himself the painful surprise of finding later in his storehouse a ruined, weevil-eaten lot of seeds.

The newly harvested crop can be examined by the owner or prospective buyer for the presence of the tiny entrance holes which spell disaster later on. And the eggs on the dried seeds are there for the information of the shrewd conservationist, the bean broker, or the railroad claim agent. If they can and will read these weevil signs, much of the enormous loss now taking place annually will be prevented. How to act upon reading weevil signs is discussed in Farmers' Bulletin 983, which can be had free by writing to the United States Department of Agriculture, Washington, D. C.

"Seventeen-Year Locusts" Dangerous Feed for Chickens

If the so-called "seventeen-year locusts" or cicadas are plentiful in your locality, and you are keeping chickens that have a chance to run under the trees where the locusts are numerous, watch out for trouble, warns the United States Department of Agriculture. It might well be supposed that the numerous locusts would provide a feast for the chicks, and they do, but this feast is not unattended with danger. Serious losses may result from the chicks eating too many of these insects. The wings and leg parts of the locusts seem to be quite indigestible, and are likely to obstruct the outlet of the crop in such a way as to cause the chicks to become crop bound.

Little chicks are not troubled because they are too small to tear apart and eat the locusts, but chicks that are more than four weeks old are large enough to devour the locusts and to have trouble as a result. The only feasible means of combatting this difficulty is to move the chicks, if possible, to fields where there are few trees and where the locusts in consequence do not gather in numbers. Trouble also has been reported from mature fowls eating the locusts in great numbers with considerable mortality resulting.

Grain Grade Appeals Valuable, Simple; How Dealers May Obtain U. S. Protection

The value of an appeal—that is, appealing to some authority to change a grade assigned to a car or lot of grain—is well understood by grain dealers in the large markets, but it is not fully realized by other shippers or receivers, the United States Department of Agriculture has found.

An appeal may be described as the action taken by a person interested in the grading of a car or lot of grain and who questions the grading of the licensed inspector by calling upon the Secretary of Agriculture through a Federal Grain Supervision office, to determine the true grade under the United States Grain Standards Act.

An appeal must be taken before the close of business on the second business day after the day of inspection. Another condition is that the grain must not have lost its identity nor have left the place where inspected.

This provides for receivers at the large markets; also for buyers at other points where licensed inspectors are located. It does not, however, provide for dealers located at points where there is no licensed inspector and who buy grain at the large markets. Yet such dealers may secure the protection that an appeal affords.

How They Proceed

They may appeal through the Federal Grain Supervision office at the market from which the grain will be shipped. In such cases it is necessary for the buyer to make a request—by telegraph, telephone, or letter—to the grain supervisor to sample and inspect the grain before the car goes forward. This is taking an appeal as an insurance; for, as the certificate of grade issued by the office of Federal Grain Supervision supersedes that of the inspection department, the car of grain will not be shipped unless the grade is what the buyer ordered. Stated in another way, a dealer orders a car of No. 2 white corn from a shipper at a terminal market. Then he wires the office of Federal Grain Supervision at that market that he wishes to take an appeal from the grade assigned to the grain by the licensed inspector. This might not be done because he thinks the grade loaded is not the grade he bought, but as an insurance that it is.

Accordingly, the office of Federal grain supervision has a sample taken from the car and the grade determined. If the corn grades No. 2 white, a certificate is issued for that grade and the car goes forward. If, however, the grade is found to be No. 3 white, for instance, or mixed instead of white, the shipper knows that it will be useless to ship the grain unless the buyer is willing to accept the corn at a discount from the original price.

Another Way Open

But if a request should not be made to the office of Federal grain supervision to have the grain inspected by one of its supervisors, and should the interior dealer find on receiving the grain that it is not up to the grade he bought, he still has a remedy. This may be illustrated by an instance that recently occurred in the regular course of business.

A grain dealer in a small town where there was no licensed inspector bought a car of No. 3 yellow corn from a shipper at one of the large markets. On receipt of the corn it was found that the car was very unevenly loaded. Approximately one-fourth of the corn on top was of good quality, while the rest had a large percentage of heat-damaged kernels mixed through it. All efforts to get the company that sold the corn to make a settlement met with the reply that the corn was sold subject to inspection at place of shipment and that no discount would be allowed.

Finally the consignees wired to the nearest office of Federal grain supervision, asking to have a licensed inspector come and inspect the grain at destination. They then called an appeal from this inspection to determine the true grade of the grain at the time and place of the last inspection. The appeal resulted in the assignment of a sample grade to three-fourths of the car and No. 3 yellow to approximately one-fourth, which had been unloaded but the identity of which had been preserved.

After this inspection by an office of Federal grain supervision the shippers made a settlement by allowing a discount of 10 cents a bushel on 1,000 bushels.

Appeals Not Difficult

Taking an appeal is not difficult, nor is it a complicated procedure. All that is necessary is to secure a blank complaint form from a Federal grain supervision office—there is such an office at every large market center—fill in with the information called for, and sign it. The document should then be left with or sent to the office of Federal grain supervision in the district in which the grain was inspected The complaint must be accompanied by the original inspection certificate and a deposit of $3. The amount will be returned if the appeal is sustained and the inspection grade changed.

Appeals do not cause serious delays, for the Federal grain supervision offices dispose of them promptly. For example, one grain supervisor thus describes the situation at his office recently:

"In one day we handled 25 appeals—9 corn and 16 wheat. All were difficult, as the corn grades were appealed on account of color and damage, and the wheat on account of damage and inseparable foreign material. Yet the laboratory work was finished by 4.30 p. m., and the samples and papers were in the mail by 6.30."

Napier Grass Should Succeed Wherever Sugar Cane is Grown

A recent magazine article on Napier grass, or Elephant grass, was misleading, because it failed to indicate the portion of the country to which it is adapted. As a consequence the United States Department of Agriculture has received many letters from nearly every State. The grass will survive the winters, as a rule, south of a line drawn from Charleston, S. C., to Shreveport, La., and in California and the southern portions of Arizona, New Mexico, and Texas. Farther northward it can be grown only as a summer annual, and as it is expensive to keep the canes over winter and to plant each spring it is hardly possible for it to compete with corn and sorghum.

Napier grass or Napier fodder (*Pennisetum purpureum*) is a native of Africa between the latitudes of 10 degrees north and 20 degrees south. It was first cultivated as a fodder plant in Rhodesia in 1909 and subsequently has assumed considerable importance as a forage plant in South Africa. Plants were introduced by the United States Department of Agriculture in 1913, since which time the grass has been under test at various field and experiment stations and also by many farmers cooperating with the Department.

Napier grass is a perennial and has proved hardy as far north as Charleston, S. C. It may be expected to succeed wherever sugar cane can be grown. The stems grow to a height of 8 to 12 feet in clumps of 20 to 50 and become 1 to 1½ inches in diameter at the base. The numerous leaves are one-half to 1 inch broad and 1 to 2 feet long, and are rather firm in texture. From the axils of some of the leaves short, erect branches may be produced. The blossoms are in a long, narrow, erect, golden spike, resembling somewhat the bullrush and the cat-

tail millet. The plant does not bloom until late in the season.

The mature canes are rather fibrous and somewhat woody, so that they are not eaten by animals, but the leaves and young canes are eagerly devoured by horses and cows.

The grass is strongly resistant to drought, as proved by experience both in South Africa and in this country.

On account of the rather woody stems of the mature plant there has been doubt as to its utility as a forage plant. No experiments have yet been performed to determine how satisfactory the mature plant would be for silage It is not unlikely that as silage most, if not all, of the canes would be consumed. If utilized for silage it is most desirable to cut two crops a season, harvesting when the plants are 5 or 6 feet high.

As a crop to cut and feed green, Napier grass should be very valuable, especially to the man who keeps a cow or a few cows. The grass could be cut three or four times in a season. No other grass that can be thus used will equal it in yield and palatability.

The grass is also likely to be found valuable for pasture, especially if small areas of it are fenced so that they may be grazed in succession. It can not be expected to withstand continuous close pasturing.

Napier grass may be propagated by seed, by cuttings, or by sections of the mature cane. The seeds must be planted carefully in boxes or seed beds and the young plants transplanted when 6 to 12 inches high.

A well-grown plant can be divided into many pieces in spring, and each will grow readily.

Mature canes can be planted after the manner of sugar canes. Usually it will be best to windraw the canes in the fall and plant them where desired in the spring. If the canes are divided, each portion should be 18 to 24 inches long.

For permanent plantings Napier grass should be in rows 6 feet wide and the plants 3 feet apart in the rows. One South African farmer produced over 7,000 plants from three plants in a single year by using slips and root division.

Napier grass is still in an experimental stage as a forage plant, but has given exceedingly encouraging results in Florida and California. Already two new names have been applied to it, Japanese bamboo grass, a name based on a misapprehension, and Carter grass. Such new names are unnecessary and lead to confusion.

The chemical analysis of Napier grass as contrasted with green fodder corn follows:

Constituents.	Napier grass.	Green corn.
Water	61.81	79.0
Ether extract (fats)	.29	.5
Protein	2.92	1.7
Carbohydrates	17.29	12.0
Woody fiber	14.77	5.6
Ash	2.92	1.2

Extra good laying hens given the best of care often average 15 dozen eggs each per year, and occasionally as high as 20 dozen. It is possible for a flock of 10 hens to supply eggs, at the rate they are commonly used, for two families of average size.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Executive and administrative head of the department.

[1] Assistant Secretary of Agriculture, Clarence Ousley.

[1] Assistant Secretary of Agriculture, G. I. Christie.

[1] Assistant to the Secretary, Alonzo E. Taylor.
Dr. Taylor is the representative of the Secretary of Agriculture on the War Trade Board.

Solicitor, Wm. M. Williams.
Is legal adviser to the Secretary and the heads of the several branches of the department, conducts its legal work, and represents it in al llegal matters.

Office of Farm Management, H. C. Taylor, *Chief.*
Studies the details of farm practice from a business standpoint, with a view to determining the most efficient methods of operation.

Weather Bureau, Chas. F. Marvin, *Chief.*
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, *Forester.*
Administers the national forests and develops use of their resources; directs all research work relating to forestry and forest utilization.

Bureau of Animal Industry, J. R. Mohler, *Chief.*
Studies aud gives information regarding live stock; conducts the meat-inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, *Chief.*
Investigates problems relating to plants and plant industries.

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Enforces the Food and Drugs Act; investigates questious of agricultulal chemistry.

Bureau of Soils, Milton Whitney, *Chief.*
Surveys and maps the soils and investigates the fertilizer resources of the United States.

Bureau of Crop Estimates, Leon M. Estabrook, *Chief.*
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

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Bureau of Biological Survey, E. W. Nelson, *Chief.*
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Bureau of Public Roads, ——— ———, *Director.*
Studies and supplies information regarding road making, road management; road maintenance, farm irrigation, farm drainage, and rural engineering and architecture.

States Relations Service, A. C. True, *Director.*
Supervises the use of Federal funds for agricultural experiment stations and agricultural extension work; investigates agricultural education, and food, dietetics, clothing, and household equipment and management.

Bureau of Markets, Charles J. Brand, *Chief.*
Investigates problems pertaining to marketing and distribution of farm products and organizing rural communities for marketing, rural credit, and other purposes. Maintains market news services on fruits and vegetables, live stock and meats, hay and seeds, dairy and other products, and inspects shipments of fruits and vegetables upon request. Enforces Cotton Futures Act, Grain Standards Act, Standard Container Act, and administers th eWarehouse Act. Mr. Brand, as chief of the bureau, is also the immediate representative of the Secretary in the execution of the duties prescribed under the President's proclamation of June 18, 1918, enforcing regulations governing licenses operating stockyards, or handling or dealing in live stock in or in connectio nwith stockyards.

Division of Publications, Edwy B. Reid, *Chief.*
Supervises the work connected with the printing and distribution of the publications of the department.

Federal Horticultural Board, C. L. Marlatt, *Chairman.*
Assists in the enforcement of the Plant Quarantine Act of August 20, 1912.

Insecticide and Fungicide Board, J. K. Haywood, *Chairman.*
Assists in the enforcement of the Insecticide Act of 1910.

[1] These positions were created for the period of the war.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JUNE 25, 1919 No. 47

MORE AMERICAN DAIRY CATTLE TO FRANCE; CHANCE FOR TRADE

Continued Shipments Depend on Quality of Animals Shipped

Department of Agriculture Points Out How Breeders May Establish Reputation and Demand; 3,000 Head First Month

Following the recent arrival from France of a commission to negotiate for several thousand head of dairy cattle, the United States Department of Agriculture points out how breeders in this country may help the farmers of France and likewise benefit the animal industry of the United States. The number of cattle to be supplied will depend upon the ability of American dairymen to furnish sufficiently good animals at the prices the commission is prepared to offer.

Probably 3,000 Cattle First Month

The department has received notification that probably 3,000 cows and heifers will be purchased the first month, and the number will be increased if the animals are satisfactory.

This is the second purchase of dairy cattle for the devastated regions of France; the first, last April, consisted principally of 104 pure-bred and grade cows and 4 pure-bred bulls purchased by the French High Commission. That importation by France was in the nature of a trial order. Those cattle and the others which will be obtained are to be used as foundation herds for the devastated sections of France. Two per cent of the total shipments, as specified by the French officials, are to be bulls.

Certificates Required

Department regulations governing transportation of live stock to foreign countries have been revised, effective June 5, and apply to dairy cattle as well as to beef animals, which in past years constituted the bulk of the shipments. The regulations require that adequate feed, water, and attendants, as well as comfortable stalls and pans, be furnished, so the animals will arrive in the best possible condition.

The Bureau of Markets, through its foreign-trade division, has arranged to have the animals transported under the classification of "relief," which makes immediate shipment possible. Inspectors of the Bureau of Animal Industry will make the necessary certification to the health of the export cattle and an official health certificate will accompany every shipment.

The success of live-stock exportations from the United States, the department states clearly, depends principally on the cooperation of breeders. It appears that

(*Continued on page 11.*)

QUALIFIED SHEPHERDS NEEDED.

"I am not convinced that a general campaign to increase the number of small-farm flocks of sheep is thoroughly wise unless the field for such an effort is first prepared," said Dr. J. R. Mohler, Chief of the Bureau of Animal Industry, of the United States Department of Agriculture, in a recent address before the More-Sheep-More-Wool Association. "There must be established a popular understanding of principles which experienced sheepmen are likely to take for granted.

"With dairy herds we find that best methods of production seldom prevail when only a few animals are kept. The owner of a very small herd is not often interested in better breeding, feeding or disease control. He is not a dairyman. But when he has a herd of a dozen cows or more he becomes a real asset to a great dairy business.

"So with sheep, we must aim, it appears to me, not so much for an increase in the number of flocks as an increase in the number of sheep kept by men who are real shepherds or have the qualifications and desire to become shepherds. Nor should we forget that farmers in general may not be versatile enough to add a profitable flock of sheep to their present live stock. It is, therefore, important that sheep raising be encouraged chiefly where the land and other conditions are suitable for it."

ARMY EQUIPMENT IS ORDERED RETURNED FOR ROAD BUILDING

Will Be Distributed Free Among State Highway Departments

Caterpillar Tractors, Road Rollers, and Concrete Mixers Included; Secretary of Agriculture Tells Scope of Program Now Under Way

At the request of the Department of Agriculture the War Department has ordered to be returned from France as soon as possible a large quantity of engineering equipment to be distributed by the Department of Agriculture, through the Bureau of Public Roads, to the States for use in the construction and maintenance of Federal-aid highways. The equipment will be distributed to the States without charge, in accordance with recent legislation empowering the Secretary of War to turn over to the Secretary of Agriculture surplus military equipment not needed for military purposes but valuable in highway-construction work. The equipment will be apportioned on the basis of the allotments in the Federal Aid Road Act, in the same way that 20,000 Army motor trucks are now being distributed by the Bureau of Public Roads at the request of the State highway departments.

Much Equipment Included

The equipment which the Secretary of War has been requested to return from France includes about 1,500 caterpillar tractors; about 400 road rollers, steam and gas driven; and a large number of concrete mixers, road graders, elevating graders, rock crushers, industrial locomotives, industrial railway track, dump cars, steam shovels, hoisting engines, electric motors, and quantities of smaller equipment.

In his letter requesting the return of this equipment the Secretary of Agriculture said:

"The highway-construction program which the Federal Government and the States propose to begin immediately is

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the largest public undertaking contemplated in the near future. It offers an immediate field for the employment of labor and the use of materials that will help to stabilize business along a number of lines. The work has been expanded so suddenly that it has not been possible to make adequate provision for furnishing the necessary equipment, and previously all the available supply was absorbed by the demands of the War Department.
* * *

"I am sending you this list as a result of a conference which I have just held with the executive committee of the American Association of State Highway Officials, at which it was represented that the various States are very anxious to secure additional equipment of the kinds indicated.

"I am thoroughly in sympathy with the efforts that are being made by the War Department to aid returning soldiers in securing employment, and I am convinced that if the equipment and supplies listed are made available it will facilitate highway construction, and thereby stimulate the employment of labor."

BLUISH STEM NOT DISEASE OF MELONS; A PREVENTIVE

A woman who was about to buy a watermelon on an eastern city market recently noticed that the stem was covered with a bluish, starchy paste, which she took to be a disease. Otherwise the melon seemed to her a choice specimen of the melon grower's art. She could not, however, be persuaded to take it until she had looked over many others in the dealer's assortment and found that all were similarly affected. Many careful buyers may have the same experience in buying watermelons this year, but they need have no fear of inferior quality because of the unusual appearance of the stem. It is not a disease, but a means of preventing one of the most serious diseases of watermelons which growers of the Southeastern States have to contend with in shipping.

This treatment, developed by the United States Department of Agriculture, prevents stem-end rot, and consists in painting the freshly cut stem of each melon with a paste made of bluestone mixed with starch. The paste should be put on the stem only, but some growers, through carelessness or haste, may smear it on the rind, which lessens the attractive appearance but not the quality of the melon.

Every time you buy a War Savings Stamp you drive another rivet into your ship of prosperity.

PLEDGES HELP TO CONTROL TUBERCULOSIS OF CATTLE

Illinois Official Offers Every Cooperation from State

Sees Warning to Dealers in Discovery of Disease in Animals Shipped Into Tennessee; Buyers Urged to Be Careful

Following a statement issued by the United States Department of Agriculture cautioning southern stockmen to make inquiry into the health of the stock which they purchase, and in which reference was made to an investigation being conducted by Federal veterinarians to locate the source of shipments of tuberculous cattle from Illinois to Tennessee, the Illinois Department of Agriculture has offered the Federal department every cooperation possible in the work of controlling the disease. In a letter addressed to the Federal department, William W. Wright, of the Illinois Department of Agriculture, says the authorities in Illinois are earnestly trying to make conditions better in trying to control tuberculosis and in endeavoring to cooperate with authorities of other States and the Federal Government in the work of controlling and eradicating this disease.

"We are taking every measure possible to safeguard the buyers of other States in the conducting of public sales of pure-bred stock," he says, "and we are earnestly attempting to impress upon the veterinarians of the State that they should take every precaution in the testing of these animals."

GLAD HE INVESTIGATED

"There was a time when I was opposed to the tuberculin test, thinking it was only a game to give the veterinarians a job, but on closer and a more careful investigation I am convinced that one of the most important items in the building up of our live-stock industry in the United States is to eradicate T. B. from our herds.

"As a result of having my herd tested I lost $1,500 in one year, but I am glad that I now have a tuberculosis-free accredited herd."—Robert E. Strutz, Jamestown, N. Dak.

May Serve Good Purpose

Referring to the shipment of three carloads of dairy cattle from Illinois to Tennessee in which veterinary inspectors found that tuberculosis existed among from 50 to 90 per cent of the animals, Mr. Wright says:

"It is a source of regret to those in authority in the State of Illinois that this incident happened. However, it may serve a good purpose in that it will be a warning to men engaged in this kind of business to be more careful about the cattle that they ship, and it may be a source of benefit to the buyers in other localities who buy this class of cattle that they take every precaution to look into the health of the animals at the time of purchase.

"The State of Illinois is glad to have the Federal department here to investigate the conditions in the locality where these cattle were purchased and the general conditions of the State, and will most heartily welcome any suggestions that are made looking toward a betterment of conditions and a control of this disease.

Good Progress in Illinois

"We feel that progress in Illinois along the line of the control of tuberculosis, considering the conditions and the situation, is encouraging. The pure-bred breeders in the State are cooperating with us most heartily."

According to official records there are now in Illinois 8 accredited tuberculosis-free herds and 55 herds that have successfully passed one tuberculin test in preparation for the accredited tuberculosis-free list. These herds are both pure-bred and grade, and indicate that breeders in the State are awake to the advantage of having their stock free from this disease and of securing a certificate from the Federal department stating that their cattle are on the accredited list.

FOR BUILDING POULTRY HOUSES

It is not necessary to build expensive houses for poultry, but they should be serviceable, fairly roomy, well lighted, and well ventilated without drafts. The house should be built with a view to simplicity, economy, and convenience, and should be constructed according to the location and climatic conditions.

The walls may consist of (1) one thickness of boards, matched or unmatched; (2) one thickness of boards, matched or unmatched, covered with one or two thicknesses of building paper or roofing; (3) one thickness of boards covered with paper, then shingled or covered with lapped siding or matched lumber, making a solid double wall; (4) double boards with dead air space between; (5) double boards with space between filled with straw, hay, or other similar material. The second and third methods are the most common.

GOOD HANDLING AND LOADING NEED OF SOUTHERN POTATOES

Careful Harvesting and Shipping Will Stop Enormous Losses

Grower Should Grade His Product; Double-Headed Barrels Recommended to Prevent Losses in Transit; Ventilation Essential

Southern potato growers can prevent much of the losses of the new crop in transit and in the markets by avoiding cutting and bruising the tubers in the field and by not allowing the potatoes to remain exposed to the sun after digging. These suggestions are given in Farmers' Bulletin 1050, soon to be published by the United States Department of Agriculture, on handling and loading new potatoes.

Careful grading will increase the growers' profits, the circular adds, and will make a sure and more constant market. It is important to keep the skin—the protecting cover of the potato—intact. In handling new potatoes this requires great care. Cars should be loaded according to a definite plan, which provides for ventilation and prevents shifting about and breakage of the containers.

Keep Skin Whole

The majority of fungus diseases that cause decay of potatoes and other vegetables can not develop when the skin is free from cuts and bruises. Careful handling is fundamental, therefore, for the prevention of deterioration and waste. In this respect probably no single factor is equal in importance to proper handling in the field and none is more generally ignored by the average grower or laborer.

Ungraded and poorly graded stock also causes heavy losses. The dealer who buys ungraded potatoes either has to sell them at a lower price than well-graded stock will bring, or he must grade them himself. In either case he pays the grower less. The grower would further his own interests by grading his potatoes, securing a higher price for the good grades and feeding the culls to live stock. Grading should not only consider size, but should eliminate all which are cut, bruised, or diseased.

Double-Headed Barrels Best

As a result of extensive investigations conducted by the Department of Agriculture at the more important shipping points in the South and at northern market centers, the investigators recommend the double-headed, ventilated barrel as the most satisfactory package for shipping new potatoes. If properly made this container is sufficiently strong to carry the weight of its contents and fully protect the potatoes. The investigations show that there is much less breakage in cars where the barrels are loaded on end than when loaded on the bilge. Records show that in practically every car loaded on the bilge without head liners from 3 to 30 or more barrels are crushed and broken upon arrival at the market. Cloth-top barrels do not protect their contents as effectively as those having double heads. Slat or veneer barrels are too flimsy. All barrels used in shipping potatoes should conform to the specifications of the United States standard barrel.

Sacks Often Fail

Although sacks are used extensively for shipping storage potatoes, they do not sufficiently protect new potatoes from cuts and bruises, and make adequate ventilation difficult. However, sacks cost less than barrels and are frequently used. Sacks should not be of greater capacity than 120 pounds. In loading sacked potatoes, set them upright, one-half of the sacks leaning against one side of the car and the other half against the other side, thus leaving a V-shaped space in the center for ventilation. Two layers of sacks may be placed on top of these, being placed flat with the ends toward the side of the car.

Hampers are not suitable packages for potatoes, for, as a rule, they are not sufficiently strong. If hampers must be used, they should be loaded on end with alternate baskets inverted. Well-built crates have been used with success.

Good types of ventilated box cars and stock cars are suitable for shipping new potatoes. When the tubers are sound and of good quality 30,000 pounds is a safe load. Double-deck stock cars are used in some sections and can be safely loaded by placing one solid layer of sacks or barrels standing upright on each deck. If stock cars are used, it is advisable to line the sides with heavy building paper to protect from sun and weather. The net weight or dry measure should be marked on all containers.

PIGS HARMED WHEN RAISERS PUSH THEM TOO RAPIDLY

Many farmers wean pigs at 6 to 7 weeks of age, when the brood sows have a good flow of milk and are capable of maintaining the young in excellent condition and development at less expense and trouble than the young porkers could otherwise be handled. Their mother's milk is one of the best feeds available for growing pigs, and consequently it should be used to the greatest extent possible, says the United States Department of Agriculture.

When the pigs are from 6 to 7 weeks old the sow should be on full feed, unless for some extraordinary reason the pigs should not be weaned until the age of 10 weeks, and in such instances it is preferable to allow them to run with their mother until they are 12 to 14 weeks old. Where pigs are weaned too early serious results often attend, as the abrupt change in the character of the ration many times creates serious trouble.

Where young pigs have access to corn, shorts, middlings, tankage, or fish meal, served to them cafeteria style in a self-feeder where they can eat it at their pleasure without being disturbed by other hogs, the youngsters can be weaned at the age of 12 or 14 weeks without making any very radical changes in their daily meals by simply allowing them to continue on the self-service system. If best results are to be obtained, the pigs must gain continuously and uniformly until they are ready for market. This necessitates an abundance of feed as well as access during the grazing season to such valuable forage crops as alfalfa and red clover. In sections where these leguminous feeds can not be produced, rye, oats, barley, cowpeas, rape, or any other grain or grass which will produce good forage in the locality should be grown for hog pasture. Hogs like to harvest their own feed. In addition to getting the feed in the freshest possible condition, the young shoats also derive benefits from the exercise in rustling a part of their daily diet.

Every hog raiser is advised by specialists of the United States Department of Agriculture to watch the spring pigs closely to see that they are on their feed; that is, that the animals have good appetites and eat their daily allowances of grain and grass with relish and avidity. If a pig shows indications of being "off feed" his owner should change the ration, using barley in place of corn and providing as much skim milk or buttermilk as is available. He should also provide an abundance of pure, fresh water for the pigs as well as plenty of shade during the hot summer months.

Freedom from lice means hog comfort. This can be obtained by the plentiful use of crude or black oil upon the animals as well as in their quarters and wallows. Natural shade is always the best, but where this is not obtainable, temporary shelter from the sunny smile of Old Sol may be obtained by setting some posts to which crosspieces are attached about 3½ to 4 feet from the ground so that a temporary roof of straw or grass may be provided for the protection of the hogs.

Grasshoppers Make Good Chicken Feed; How to Catch and Turn Them Into Food

When grasshoppers make their appearance they can be destroyed by the common poisoned bait method. But there is another way of getting rid of grasshoppers that makes the pests pay for the trouble of killing or catching them. This method consists of driving a grasshopper catcher through an infested field, catching all the grasshoppers that hop, and then feeding the insects to chickens. They can be dumped into sacks and hung up to dry and fed as dry grasshoppers, or if it is preferred to feed the grasshoppers alive, the machine can be hauled to the poultry yard and placed so that the front will face the light. The insects will find their way out but not too fast for an ordinary flock of chickens. Thus the grasshopper catcher becomes a poultry self-feeder.

An analysis of grasshoppers shows them to be high in protein and therefore good chicken feed. It is known that chickens are more productive when insects are a part of their ration and grasshoppers when dried can be used with other feeds during the winter.

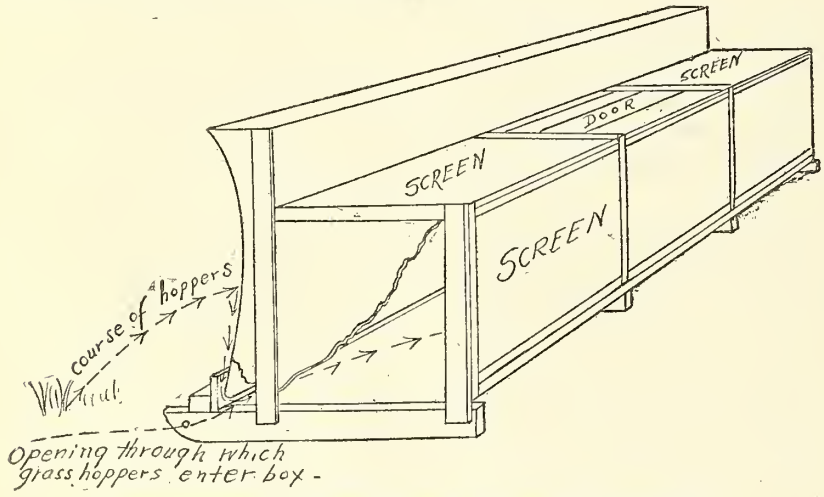
Make-Up of Poisoned Bait

The poisoned bait recommended consists of bran or sawdust made tasty and attractive by the addition of molasses and fruit and treated with an arsenical poison. The following formula is recommended:

Bran (half and half bran and hardwood sawdust, or sawdust alone), 25 pounds; Paris green or crude arsenious oxide, 1 pound, or white arsenic, 1½ pounds; molasses (cheap feeding grade), 2 quarts; lemons, bananas, or oranges, 6 fruits, or 1 ounce of cheap lemon extract; water, about 2 to 4 gallons.

The poison should be thoroughly mixed with the bran. The water, molasses, and finely chopped fruit or extract are then mixed and added. The mixture should be wet so that it molds in the hands but is not "soppy." The bait should be scattered broadcast at the rate of 7 to 10 pounds to the acre, applications being made in the early morning.

In clover or alfalfa much material and labor can be saved by first cutting around the field until there remains a small central uncut area where the grasshoppers will have gathered and may be quickly and cheaply destroyed by the poisoned bait. If the grasshoppers are feeding in corn or young trees more water or, better, more molasses and water, should be added and the mixture thrown forcefully so that the particles will adhere to the crops to be protected.



GRASSHOPPERS CAN BE CAPTURED IN THIS PORTABLE CAGE.

The grasshopper catcher, which has an advantage over the old style hopperdozer, in that the insects can be utilized for chicken feed, is about 16 feet long with an upright but curved piece of tin in front and so arranged that the grasshoppers will strike it as they hop up, falling to the bottom and back through a narrow trap opening into a box behind. The tin front does not extend quite to the bottom, where, just in front of the tin shield, is a strip of tin placed so that there is an opening about 1½ or 2 inches wide. This front strip or lip may be made by using a 16-foot length of gutter, one side of which is flattened outward. The back and top of the box in the rear is covered with wire screen and the top should be so hinged that it can easily be opened and the accumulated grasshoppers shoveled out as needed.

A horse is hitched at the extended beam at each end and the catcher dragged through the infested area, beginning at the sides and working toward the center of the field. A boy riding on each horse can handle the machine nicely. A heavy rope attached to the hames so that it drags a few feet in front of the shield is an advantage in that it stirs up, just before the catcher passes, the hoppers not otherwise disturbed.

THRASHING SCHOOLS TRAVEL NORTHWARD, TEACHING 3 R'S

A return of "three R" days for thrasher men, which involve educating the separator man concerning the running, repairing, and readjustment of his machine in three-day thrashing schools under the direction of the United States Department of Agriculture and the State agricultural colleges, has proved popular in Kansas and Oklahoma, where the schools have already been held. The primary purpose of these schools is to instruct the thrasher men in the care and operation of their outfits, so that the waste of grain in thrashing will be minimized. It is estimated that grain saving at thrashing time last year saved 20,000,000 bushels of wheat.

Schools have been held at Wichita, Norton, Abilene, Mankato, Great Bend, Dodge City, and Hays, Kans., all of these cities being centers in the thrashing operations. One-day schools have also been held at five towns in Oklahoma and two in West Virginia. There is also a possibility that two other schools will be held in West Virginia at a later date. Tennessee plans to conduct at least three three-day schools, while Maryland has arranged for a series of six one-day schools in the grain-growing districts. The longest school to be held will be at the University of Minnesota, Minneapolis, from June 16 to June 20. Montana has arranged for five three-day schools, beginning June 19 and terminating the middle of July. Utah also is planning thrashing schools from June 16 to 21, while Idaho, Washington, and Oregon will hold two to five schools each, the dates of which have not as yet been arranged. No funds are available in several corn-belt States for thrashing schools, Indiana being the only one in this section to inaugurate this practical method of saving grain.

Think in interest—your own interest—save and invest. War-Savings Stamps pay 4 per cent interest, compounded quarterly.

Farming and Industry to Be Helped by Forest Products Laboratory's War Work

Post-war activities of the Forest Products Laboratory at Madison, Wis., are rapidly developing the industrial application of much of the information acquired during the war. The laboratory is operated by the Forest Service of the United States Department of Agriculture.

Many of the special projects started prior to the signing of the armistice, in cooperation with the War and Navy Departments, are now being completed in order that the results of the work may not be altogether lost. There has, therefore, been a reduction in the laboratory's force of only about 100 people, the present force numbering approximately 350.

At the same time, special efforts are being made to make available all new information for reconstruction purposes. During the war the laboratory was given over, practically exclusively, to research work on problems involving the use of wood with special application to war requirements. Practically all of this information naturally has direct application to the peace time use of wood by the lumbering and wood using industries, and it is with these industries that the laboratory is now establishing contact and cooperation, with the purpose of bringing about more intelligent and economical use of wood.

Much Work on Airplane Wood

Almost 75 per cent of the laboratory's war work had to do with the use of wood in airplane construction. The problems involved the best methods of kiln drying wood without injury to its mechanical properties, the suitability of various species for different airplane parts, the determination of proper manufacturing conditions and methods in constructing airplane propellers, the development of water-resistant glues, the strength values of different forms and species of plywood, the development of new designs for wooden parts of airplanes, the possibilities of built-up material and fabricated construction, the development of water-resistant finishes for wood, and the designing and development of commercial kilns for the speedy drying of wood.

The information obtained from the investigations in kiln-drying wood promises to give a marked impetus to the development of more economical and efficient kiln-drying methods throughout the wood-using industries. Many of these industries have already expressed a desire to take advantage of the new knowledge gained, and the laboratory has recently started a course in kiln drying for furniture manufacturers. The cooperation was developed through committees representing chair and furniture manufacturers visiting the laboratory.

Helping Car Builders

Work with the railway car building companies has also just been arranged. Many of these companies, it appears, are having much trouble and heavy losses in drying stock used in building railway cars, and have expressed a desire to have the laboratory give them the benefit of its information on more efficient and economical methods of handling various species during the drying process. Laboratory representatives are now visiting the various car building plants, with the idea of working out such changes in their present kiln-drying methods as will reduce their losses and difficulties to a minimum.

Waterproof glues developed at the laboratory during the war promise to have very broad application in the industrial field. This has been especially recognized by furniture and plywood manufacturers, and cooperation has already been effected with the Grand Rapids Furniture Manufacturers' Association whereby a course in the making and using of glues is now being given as a part of the laboratory's instructional work. The information available, if put into industrial application in furniture manufacture, should not only eliminate present criticism of poorly glued furniture, but should make it possible for the furniture manufacturers to adjust their gluing processes so as to meet specific climatic conditions. For example, one of the present problems in exporting American-made furniture to the Tropics is the inability of the glued joints to resist the climatic conditions of the Tropics.

Using Wood Waste

A particularly interesting field of possibilities for greater utilization of wood and wood waste as a result of the laboratory's war work is the use of built-up and fabricated construction. This is merely utilizing small pieces of wood and a glue which will make a joint as strong or stronger than wood, and building them up in the forms desired. It was found, for example, that a laminated wing beam for airplanes could be constructed as strong as a solid beam, and this at once made possible a great increase in the utilization of spruce material which otherwise had to be eliminated from aircraft construction.

While laminated construction has been used for a good many years, it has been restricted largely to interior use because glues which would effectively withstand exterior moisture conditions have not been available. New glues now available, however, open up the whole field of exterior use for this type of construction, and owing to the increased strength developed in the new glues, make possible the utilization of small material in laminated form for exterior and interior uses not heretofore possible. These possibilities are numerous. Tests have been made on a series of built-up doors for the purpose of determining the best form of construction for built-up doors going into the export trade. A series of laminated bowling pins and shoe lasts were also made at the laboratory, and these are now being tested in commercial use.

During the war laminated gunstocks were shown to be entirely feasible and probably would have been adopted by the War Department had the war continued. The practibility of laminated wagon hubs and felloes is being tried out by the laboratory, and if successful will go far toward greater utilization of the limited woods used for these purposes. In fact, as further information becomes available, laminated and built-up wooden construction might well revolutionize present logging, milling, and woodworking factory practices and save to the Nation a large percentage of wood which now goes into the waste heap.

Future for Plywood, Too

The information and data resulting from the laboratory's work with plywood likewise has broad industrial application. It is expected that the next few years will see a very marked increase not only in the use of plywood, but in its form of manufacture and its application to various uses. The laboratory has developed new economical and practical manufacturing methods, standard tests to secure uniformity of product, and has determined the suitability of various woods heretofore unused for plywood.

Work is yet to be done along these lines and the results will be the basis for the intelligent use of plywood. It is already being predicted that within a few years there will be upon the market houses of the so-called "ready-built" design, made practically altogether of plywood construction.

Reducing Shipping Losses

The laboratory's work in testing and designing shipping containers has attracted attention from all parts of the country primarily because of its applica-

tion to peace-time industrial efficiency. Millions of dollars are lost annually owing to defectively constructed shipping containers. Such losses can be reduced, it is believed, to a negligible minimum. The laboratory is working in close cooperation with box associations and the Railroad Administration in order to make its data and facilities of the greatest value.

The need of the development of wood pulp as a source for explosives was emphasized by the entrance of this country into the war and the subsequent threatened shortage and high price of cotton. Although practically nothing had been done along this line, the laboratory, after considerable investigating, developed methods for the production of soda and sulphate pulp suitable for nitrating. Factory runs of these pulps at a Government arsenal proved conclusively their suitability for nitration purposes. These results have application along other lines, particularly in the manufacture of lacquers, pyroxylin products, and other uses, and the laboratory is continuing the work.

Saving in Wood Distillation

Glue profits to producers and lower costs to consumers of wood products, such as turpentine, rosin, grain alcohol, charcoal, acetic acid, wood alcohol, tannin, are possibilities, if the present plans of the laboratory for further experiments along these lines can be carried to completion. Millions of dollars annually can be saved by increasing the yields of naval stores and the products of wood distillation, and by bringing about a greater utilization of wood waste for distillation purposes. The Forest Service has already developed a better method of tapping pine trees, which has been adopted quite generally by the rosin and turpentine industries, and which, it is estimated, will bring about a large annual saving.

The laboratory cooperated directly with the War and Navy Departments in investigations and advice on production of acetic acid and acetone for airplane tests, the manufacture of gas-mask charcoal from wood, the development of a gas-mask absorbent for carbon monoxide, increasing the production of grain alcohol from wood and sulphite waste liquors, and the production of various tear gases, poison gases, and chemicals produced from wood products. These investigations, together with the prewar work accomplished along the same lines are now being directed toward industrial application, and give promise of very remarkable results. For example, the development for a new and important use for the by-products of the wood distillation industry is seen in the working out of efficient methods for the production and utilization of various wood tars and oils.

New Uses for Pulp

In the pulp and paper field, the laboratory, in addition to continuing its study of the suitability of various species for pulp and paper, has already made plans to extend the use of wood pulps in the manufacture of twine, artificial silk, rugs, and textiles; to promote the utilization of waste products by bringing together the pulp and paper industry and the industries which can use pulp and paper wastes, such as the tanning industry and the roofing-felt industry; to work out new uses and extend old uses of pulp and paper products, such as the development of primary fiber containers for moist and greasy foodstuffs, and to study the methods of manufacture and design of fiber containers in place of those made of tinplate, glass, wood, and other materials.

U. S. EATS LITTLE MUTTON

In Great Britain about 22 per cent of all meat consumed is mutton. In France the per cent is about 11. In Canada it is not quite 7, and in the United States it is only about 3½ per cent. Last year (1918) the consumption of dressed meat (lard excluded) in the United States averaged 150 pounds per person, of which only 5 were mutton and lamb.

The British, the Canadians, and the French—all similar types of people and having habits of life similar to Americans—use less meat than Americans do but a much larger proportion comes from sheep. The United States gets its meat principally from cattle and hogs. Pork consumption is about 14 times, and beef consumption about 13 times, as great as our use of mutton and lamb. These are the annual averages for last year.

The timber preservation work of the laboratory was temporarily discontinued during the war, owing to the need of investigations along other lines. This field, however, is of tremendous importance from a broad national standpoint in that great savings are made annually through the use of effective wood preservatives. Knowledge of the best preservatives and the best methods of treatment have direct application in the immense amount of lumber going into farm use, and the laboratory is therefore resuming its prewar investigations with the purpose of reducing present losses due to decay of timber used in mill construction for buildings, poles, posts, piling, ties, and other wooden structures. These losses annually amount to a staggering figure. A large proportion of this is believed to be preventable through proper treatment and care of lumber by methods already worked out, and the development of new preservatives and new methods of treatment offer great possibilities for relieving to a very large extent the useless strain upon the raw material resources of the lumber industry.

PROTECTION FOR ELK HERD SOUGHT BY GOVERNMENT

The range of the elk herd on the western end of the Sitgreaves National Forest in northern Arizona has been investigated by officials of the Forest Service, United States Department of Agriculture, the State game warden, and representatives of the Benevolent and Protective Order of Elks. This herd, which numbered 84 head, when introduced in 1914 by the Department's Biological Survey, the Arizona Game Department, and the Forest Service, is in a flourishing condition and is now estimated to number about 300 head. In the opinion of the investigating officials, this area is admirably adapted to elk and other game, being one of the most isolated portions of the State.

The State game warden is investigating the possibility of constructing elk-proof fences around the cultivated areas of the region to protect the haystacks and growing crops from the alleged depredations of the animals. Consideration is also being given to the creation of a small game refuge for elk and other species in the region and the advice of the Bureau of Biological Survey is being sought concerning the future handling of this herd.

At the annual meeting of the Order of Elks, to be held at Atlantic City in July, the whole subject of the preservation of the great national elk herds will be taken up. Several years ago their annual convention went on record against the killing of elk for their teeth.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended June 14, 1919:

The Striped Cucumber Beetle and Its Control. Farmers' Bulletin 1038.

Rhodes Grass. Farmers' Bulletin 1048.

Handling and Loading Southern New Potatoes. Farmers' Bulletin 1050.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Many Wheat Varieties Prove Handicap to Millers and Growers in Washington

Owing to varied climatic conditions and to the lack of systematic seed selection and seed standardization, Washington State grows all the classes of wheat listed under the Federal grades, and of course grows considerable mixed wheat as well. The records of the Washington State Inspection Department from July 15, 1918, to February 1, 1919, at Seattle and Tacoma show that every one of the six classes of wheat was represented, and in addition over 5 per cent of the receipts was mixed wheat.

The total inspections at the markets for the period mentioned was 9,240 cars of wheat, divided into the respective classes as follows:

Class.	Cars.	Per cent.
Common White	3,023	32.72
White Club	2,730	29.55
Hard Red Spring	1,702	18.42
Hard Red Winter	661	7.15
Soft Red Winter	646	6.99
Durum	4	.04
Mixed	474	5.13
Total	9,240	100.00

Handicap to Millers and Growers

Before the establishment of the Federal grades, attention was not so easily called to the many varieties of wheat marketed in Washington, though the local millers there were perfectly cognizant of the fact, as also were the exporters. So many varieties are a serious handicap to the millers, and therefore react upon the growers. It is impossible for the large mills to secure enough of any one variety to keep them going throughout the year; therefore, blending of different varieties is necessary. And where there are so many varieties, great technical skill on the part of the miller is necessary in order to blend different wheats, so that his flour will run evenly throughout the season. Moreover, every crop year calls for a different blend, according to the peculiarities of the growth of the different varieties.

This may be illustrated by the crop harvested last summer. The growing season was dry, which resulted in more or less shrunken kernels for all the varieties but Hard Red Spring. Just as wet growing seasons produce large, plump, starchy kernels, so dry seasons produce a smaller, harder, and perhaps shrunken kernel, lacking in starch but relatively rich in gluten.

Therefore, even when a miller has only one variety of wheat to grind, each season brings its problems for him; but when he has half a dozen varieties and as many more crosses between these varieties, his troubles are vastly multiplied.

The sequel to this is that the miller can not pay as much for his wheat when he has to blend several varieties, each with its own peculiarities, as he could if he bought but one or two types of wheat.

The Classes and Subclasses

The different classes of wheat inspected at Seattle and Tacoma were divided into their respective subclasses, in the inspection returns, as follows, by percentages (except White Club, which has no subclasses):

	Per cent.
Common White—	
Hard White	84.32
Soft White	15.68
Hard Red Spring—	
Dark Northern	70.10
Northern	29.79
Red Spring	.11
Hard Red Winter—	
Dark Hard	38.13
Hard Winter	59.45
Yellow	2.42
Soft Red Winter—	
Red Winter	.46
Red Walla	99.54

Percentage by Grades

Divided into grades, according to the returns from the State inspection department, Hard Red Spring showed marked superiority over the other classes, 90.6 per cent falling into the No. 1 and No. 2 grades. The poorest showing was made by Common White, of which only 37.74 per cent graded No. 1 and No. 2.

The percentage of the different classes that fell in the first three grades is shown in the following table:

Class.	No. 1.	No. 2.	No. 3.
	Per cent.	*Per cent.*	*Per cent.*
Common White	8.46	29.28	35.07
White Club	26.63	46.35	22.01
Hard Red Spring	76.32	14.28	4.99
Hard Red Winter	34.34	45.39	11.04
Soft Red Winter	30.65	49.23	16.56

Test Weight Per Bushel

As the test weight per bushel is, generally speaking, the most important test made in determining the grade, the result of this test on the several classes of wheat inspected at Seattle and Tacoma is of particular interest.

On the test weight per bushel test, the percentage of each class that fell into the first three grades is shown in the following table:

Class.	No. 1.	No. 2.	No. 3.
	Per cent.	*Per cent.*	*Per cent.*
Common White	10.45	35.07	38.80
White Club	36.71	45.57	13.91
Hard Red Spring	95.35	2.85	1.42
Hard Red Winter	43.24	45.40	10.81
Soft Red Winter	32.14	35.71	32.14

The Moisture Test

All the classes but Hard Red Winter made a good showing in the moisture test, particularly the white wheats and Soft Red Winter.

The following table shows the percentages of each that fell into the first three grades:

Class.	No. 1.	No. 2.	No. 3.
	Per cent.	*Per cent.*	*Per cent.*
Common White	97.01	2.98	0.00
White Club	97.43	1.26	1.26
Hard Red Spring	79.64	8.57	5.37
Hard Red Winter	69.73	8.65	5.40
Soft Red Winter	92.85	7.14	.00

What the Dockage Showed

It appears that a greater percentage of Hard Red Spring samples were subject to dockage than any of the other classes, as shown by the following table, which gives the percentage and the average dockage for the samples:

Class.	Percentage of samples with dockage.	Average dockage.
Common White	36	0.53
White Club	52	.85
Hard Red Spring	74	1.46
Hard Red Winter	49	.95
Soft Red Winter	21	.25

Smut Dockage.

Class.	Percentage of samples with smut dockage.	Average smut dockage.
Common White	11.0	0.10
White Club	33.0	.29
Hard Red Spring	2.5	.01
Hard Red Winter	20.0	.24
Soft Red Winter	39.0	.41

No. 2 corn had an average price of 21.2 cents a bushel in Chicago above the farm price of all corn from November to April for the crops of 1914–1918, and 13.6 cents from May to October, the second half of the consumption year. The average differences for the five corn crops preceding the war were 7.3 cents a bushel in the first half of the consumption year and 4.5 cents in the second half.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

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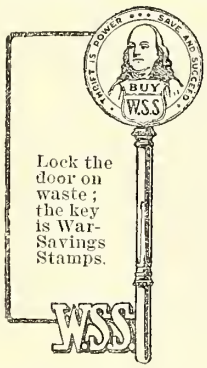

NATIVE ELEMENT HIGH AMONG U. S. FARMERS

Immigrants ceased to expand the agriculture of the United States in any considerable degree before 1910, the year of the latest census. One of the revelations of that census was the nonagricultural character of the millions of immigrants of the preceding 10 years. Of more than 38,000,000 persons reported as having occupations in 1910 the native whites with native parentage were nearly 18,000,000, or about 55 per cent of the whites, and the native whites of foreign or mixed parentage and the foreign-born whites were more than 14,800,000, or about 45 per cent of the whites. It is interesting to observe how agriculture compares with other large occupational groups with regard to the latter element—the foreign and semiforeign.

This element was 25.4 per cent of all white persons having occupations in agriculture, and among the more general groups only the very small group of salt, oil wells, and gas wells had a lower fraction, 22.1 per cent. Among the more prominent groups of occupations, the professional class was next above agriculture, with 35.3 per cent of its total whites foreign and semiforeign, and in this class the teachers had 30.7 per cent of this element.

Next in order, this element was 45.7 per cent of all whites having occupations in the lumber and furniture industries; 47.9 per cent each in trade and in transportation; 49.2 per cent in the building and hand trades; 58.1 per cent in the total of manufacturing and mechanical industries; 58.8 per cent in domestic and personal service.

In three prominent groups of industries the foreign and semiforeign element was nearly two-thirds of the total whites—63.4 per cent in the textile industries, 63.5 per cent in the iron and steel industries, and 66.6 per cent in mining. Still higher percentages are found in some groups—72.9 per cent in the liquor and beverage industries, 77.2 per cent in the woolen and worsted mills, and 80.3 per cent in the clothing industry.

While agriculture is by far the largest industry in this country in mass of persons employed, it is also distinguished as possessing a native element in comparatively high degree.

BUREAU OF MARKETS CHIEF RESIGNS—ACTING HEAD NAMED

Charles J. Brand, Chief of the Bureau of Markets, United States Department of Agriculture, since its inception in 1913, has resigned, to take effect at the close of business on June 30, 1919. He will become vice president and general manager of a commercial concern, with headquarters at Pittsburgh, Pa. George Livingston, a member of the bureau staff, will be designated to act as chief of the bureau until Mr. Brand's successor is appointed.

The Secretary's letter to Mr. Brand, accepting his resignation, is as follows:

"I have this day received, with much regret, your resignation tendered to take effect at the close of business on June 30, 1919.

"You have been in charge of the organized marketing work of the department since its beginning in 1913. Starting with a modest appropriation of $50,000, the Bureau of Markets this year has had a budget of approximately $4,500,000 aside from the appropriation of $10,000,000 for the purchase and sale of nitrate of soda. Its activities have been greatly extended in many directions and it has rendered increasingly valuable service to the Nation. It is charged with the administration of a number of important and difficult laws. When you assumed your duties you were faced with a pioneer task. There were then no marketing agencies, either in the Federal or State services, solely designed to assist the Nation in the marketing and distribution of farm products. These matters had received too little attention at the hands of institutions training men for national service, as well as at the hands of legislative bodies. You were confronted with the duty not only of marking out in a definite way the paths of endeavor, but also of discovering, and in a measure of training, the men for the work.

"Throughout your period of service, both in peace and in war, you have discharged your task with remarkable ability and patriotic devotion. Wishing you the greatest success and happiness in your undertakings, I am,

"Cordially, yours,

"D. F. HOUSTON,

"*Secretary.*"

Mr. Brand has been with the Department of Agriculture since 1903 and had charge of the forage crop and paper plant investigations and the cotton handling and marketing work of the Bureau of Plant Industry before the creation, in 1913, of the Office of Markets, which was afterwards made a bureau. Under his direction the Bureau of Markets has grown from a dozen employees to a staff of about two thousand, located in Washington and in other cities and at country shipping points. It has built up, under Mr. Brand's direction, a nation-wide market news service for producers and distributers of farm products, has carried on many investigations for improving marketing practices and methods, and has performed regulatory work in connection with the application of Federal grain grades, cotton standards, stockyards licensing, cotton futures, and food products inspection. Mr. Brand was chairman of the Committee on Cotton Distribution of the War Industries Board, and was liquidating officer of the Wool Division of that board. He also directed the distribution of about 200,000 tons of nitrate of soda to farmers for use as fertilizer.

COW MUST REPAY GENEROUS FEEDING

The cow must be regarded as a sort of living machine. She takes the raw materials given her in the form of food and works them over into milk. If the supply of proper materials is small, the output will be small. The cow that will not repay generous feeding should be disposed of and one bought that will. There are, of course, certain inbred characteristics or natural qualities which even liberal feeding can not overcome.

Proper Handling of Eggs Shown At Meetings Held in Three States

Better-egg meetings, at which demonstrations of the proper handling and candling of eggs were given, were held at a number of places in June in Missouri, Kentucky, and Tennessee. They were conducted by representatives of the Food Research Laboratory of the Bureau of Chemistry, United States Department of Agriculture, working in cooperation with the State agricultural colleges, the State food and drugs department or the State board of health, and members of the peultry and egg industries.

Tennessee made a tremendous stride in the improvement of its handling of eggs during the war when the need for the saving of all foodstuffs resulted in a ruling that all eggs must be candled as a war measure. Now that the war emergency is ended, if egg dealers in Tennessee go back to old methods, their pocketbooks will suffer and their eggs will be discriminated against by the receivers in the large markets, according to department officials.

Issue Rules for Candling

The Kentucky State Board of Health has issued a series of rules under which all eggs must be candled. These rules embody the salient features of the uniform good egg law adopted elsewhere, and the department believes they will mean that the value of this year's egg crop in Kentucky will be enormously increased. The rules will tend to prevent eggs being allowed to deteriorate because of carelessness and delay in getting them to market. The adoption of such rules by the State board of health and the interest in them by poultrymen and dealers indicates an appreciation of the great advance made in the care of eggs in Kentucky last summer.

Missouri, it is thought, has taken a long stride forward this year in passing the uniform good-egg law, which compels all dealers in eggs to candle their products. If it will not actually eliminate, the law will at least greatly reduce the number of eggs which have heretofore rotted in Missouri. This does not mean that the act of candling prevents the deterioration of an egg. It does mean, however, that as each man must candle, it will be an easy matter to fix the responsibility upon the person who permitted the egg to remain under disadvantageous conditions long enough to permit rotting. As the rotten eggs will not be paid for, it is readily seen that it is eminently to the advantage of each man through whose hands the eggs go to see that they are so handled that they do not rot. The only way to prevent eggs rotting on their ordinary course from the producer to the consumer, especially in the hot weather, is to keep them as continuously as possible under refrigeration.

Small Chill Rooms Recommended

The work of the Food Research Laboratory during recent years has demonstrated that small chill rooms, cooled either by ice or by small machines, can be built so inexpensively that they are even within reach of the country storekeeper. Many of these little rooms are being installed.

Information in regard to them may be obtained by writing to Food Research Laboratory, Bureau of Chemistry, United States Department of Agriculture, 1833 Chestnut Street, Philadelphia, Pa., or to the Field Station of the laboratory, 22 Jackson Place, Indianapolis, Ind. Information, advice, simple plans showing the layout of the plants, and if necessary, personal visits will constitute the reply to such queries.

STUDY PEACH-ORCHARD CONDITIONS

Members of the county farm bureau of Kent County, Del., recently toured peach orchards in the county to study fruit-production problems. Eighteen automobile loads of farmers inspected a number of orchards and observed tractors cultivating orchards, became acquainted with the Government regulations of fruit packages and carriers, and saw results of attacks of leaf curl and twig blight. Early and frequent cultivation and dormant spraying were shown to be important in controlling these diseases.

FEEDING STANDARDS

Good judgment and intelligent observation on the part of the feeder are necessary in the application of feeding standards, as the calculation of economical rations is not merely a matter of applied mathematics. The local conditions as regards the feeding stuffs which can be grown and purchased economically, and the value of the products, will have much to do in determining how closely the feeder can afford to adhere to the standard. But such standards or formulas, used in connection with the feeder's observation of his animals and the markets, are very useful, and have served a good purpose in improving the practice of feeding. It is in their abuse that the chief danger lies.

Here's a Box With a Spring in the Middle; Keeps Straps On

Packing boxes which are able to escape from their iron-reinforcing bands as neatly as a handcuff king from his shackles present one of the curious problems which the United States forest-products laboratory at Madison is trying to solve. Some wooden boxes when bound with metal straps can free themselves over night, no matter how tightly the straps are drawn. Such a feat is possible, according to the laboratory, from the fact that the boxes are made up of lumber which is not thoroughly dried, and upon drying out they grow smaller.

Metal straps are a very necessary reinforcement on many kinds of boxes which are to be shipped by freight. A canned food box, for instance, which is not thus girded will travel only half as far or stand only half as much rough handling before breaking open. The boards of canned food boxes are usually too thin to permit nailing the straps in place. These can only be wrapped around the box, drawn as snug as possible, and fastened at the ends. If a box is made of dry lumber, the straps will cling to it tightly throughout the journey; otherwise, if left for any length of time in the hot sun on a depot platform or in a heated warehouse the box is likely to shrink so much that the straps fall off, leaving only the thin boards to hold in the contents. Large numbers of food cans are now spilled out along the way from the canner to the grocer from this cause.

A new box has been designed at the laboratory to reduce such losses if possible. The box is so built that its sides can be squeezed in by the metal girdles until it is smaller in the middle than at the ends. The spring thus developed in the box keeps the straps tight, and they can not slip over the ends even should the box shrink.

As far as possible the buyer should select pullets of the same breed and variety as shown by the size, color of plumage, and form of comb. It is not advisable, however, for one who keeps only a small flock to supply eggs for the family table to select for uniformity in comb or color it to do so leads to marked inequality in size.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

Garden for Family of Five Costs $2.50; Yield Was Big

One dollar for seeds, 50 cents for plowing, and another dollar for a load of manure included all that a woman in Durham County, N. C., spent in money on her 40-foot garden last year. Besides producing enough to serve a family of five all summer, there was plenty to can and store for winter use.

Mrs. Boone, the owner of the garden, is one of the members of a garden and canning club organized by the United States Department of Agriculture and the State college. She did all the garden work except the plowing.

In the fall of 1917 this club member planted five rows of onions, 27 inches apart. Mustard, rape, and kale were sown between the onion rows early in the following March. In a few weeks these crops were large enough to eat and bunches were pulled out at intervals of 27 inches. Early corn was planted between the salad material and when it was ready to "lay by" the onions were fit to be pulled. Cornfield beans were then planted between the corn hills. From these first five rows four crops were harvested—2 bushels of onions, salad for the family and $2 worth to the grocer, sweet corn and beans until frost.

Successive planting was practiced throughout the garden, and every row produced at least two crops. Two rows of tomatoes bore until frost. Collards, for winter use, were in the early snap-bean rows. Snap beans, corn, and cabbage followed cucumbers, squash, and early butter beans. This gardener keeps a diagram of her garden and the vegetables planted in each row, so the crops may be rotated year by year. Twenty-one kinds were grown in this 40-foot garden during the season—lettuce, mustard, rape, kale, radishes, cabbage, snap beans, cornfield beans, butter (lima) beans (bunch and running), beets, okra, onions, squash, collards, two varieties of corn, cucumbers, Irish potatoes, turnips, parsnips, two varieties of tomatoes, and two varieties of peppers.

For winter use 360 pints of vegetables were canned, a few jars at a time. In the cans were snap beans, tomatoes, butter beans, okra, beets, soup mixture, cucumber pickle, green tomato pickles, chow-chow, pepper relish, beet relish, stuffed peppers, and sauer kraut. Beans, peas, and onions were dried and stored. Lettuce, collards, turnips, onions, and parsley were grown in a cold frame to furnish fresh vegetables during the winter. It is the belief of the owner of this garden that there would be more "home-loving" women if more had a garden in their back yard, and that for a morning tonic nothing can excel an hour with a hoe.

MAKES MONEY WITH CHICKENS

Old Madam Hen is proving a veritable fairy godmother to many girls in supplying them with money for comforts and luxuries. Poultry clubs organized by the Department of Agriculture and the State colleges are popular with the girls in both the North and the South. Even small girls who carefully follow directions find poultry a source of profit. Grace Butler is a 14-year-old club girl in Logan County, Okla. Last year she sold 159 birds for $147.25. During the year $125 worth of eggs were sold and she still has 200 chickens—worth as many dollars. A flock of pure-bred Plymouth Rocks of her own raising provided the eggs and two incubators hatched them.

AIDS FUTURE STOCK RAISERS

The boys' and girls' club work is an excellent means for helping the rising generation to know what kind of live stock will do well in their communities and to decide intelligently on the best type of animals to raise.

The clubs induce serious thought, eliminate many roseate, impractical ideas, and give the members early in life a grasp of valuable live-stock principles.

Willie Brogan, of Cochise County, Ariz., made a profit of $462.07 on his club garden last year. On these results he was awarded the State championship in the boys' and girls' garden-club project. This club member's garden was irrigated every other day until the plants commenced to grow. The irrigations were then limited to once a week. His total receipts were $577.44 and his expenses $115.37. The total profit was $462.07. As his garden contained 43,512 square feet, the profit per foot was $1.06.

Alabama Boys' Club Led By Veteran with a Vision

A community boys' agricultural club at Hodges, Marion County, Ala., has for its leader a returned soldier boy, who has a vision of what a rural community should be.

Marvin Davis was in a Coast Artillery unit, and fought through the battles of the Argonne Forest and the Meuse Valley. Part of his time was spent with the famous Rainbow Division, and he mingled in the dugouts with the Rainbow boys the night before they went over the top for their last drive toward Sedan.

After risking his life and causing a lot of Germans to lose theirs, all in the interests of humanity, Marvin was returned to the States, discharged and permitted to return home to do his part in working out the destinies of a free people.

Marvin attended the agricultural school at Hamilton some years before he went into the Army, and was known as a thoroughly progressive farmer, but his vision was broadened greatly by his observations in Europe, and he determined to see what could be done in his home community. After thinking the situation over carefully he decided that the most effective means for improving the agriculture and general conditions in the community was to organize a live boys' agricultural club, and get the active support of the community back of it.

The season was growing late. The district school had closed, and the teacher, a nonresident, was gone probably not to return. The county farm demonstration agent had resigned. Marvin saw that it was up to him. He talked matters over with his neighbors, wrote to Auburn for material and instructions, secured the assistance of a successful teacher and club worker from a neighboring community, and organized his club. The club elected Marvin as chairman of its advisory board and two wide-awake farmers who have been in the club as the other members. The entire community is working enthusiastically for the success of the club.

Marvin is offering a free trip to the State fair as the first corn club prize, and a neighboring breeder is offering a registered pig as a first pig club prize. Money has been raised for additional prizes. A community fair or club show will be held early in October, at which the club prod-

ucts will be judged and the prizes awarded.

BIG GAINS IN CLUB MEMBERSHIP

From many localities throughout the United States reports are being received from club leaders stating that club membership, as well as club interest, is increasing this year over last year, when special attention was given the work as a war emergency. The home demonstration agent in Natchitoches Parish, La., says, "I find that a much larger percentage of my poultry club members have pure-bred chickens and eggs this year than last and I find that this branch of the work is getting on a very substantial basis. The poultry club enrollment is twice as large as last year and the canning club nearly three times as large."

OLD MEMBERS REJOIN CLUBS

Good work accomplished by the boys' club of De Soto County, Fla., last year encouraged practically all of the old members and many other boys to join the clubs this year. There are now in the county 54 members in the pig club, 24 in the corn club, and 6 in the cane club. In Marion County the county agent recently placed 53 pigs with club members. The boys are buying good stock, he reports, and are willing to borrow the money to pay for it if necessary. In Walton County both the corn and pig club work are growing, there being 50 new members in them.

CLUB MEMBERS EXHIBIT PIGS

Nineteen boys and girls, members of the Colorado pig clubs, exhibited their prize pigs at the National Western Live Stock Show held recently in Denver and carried off $255 in prizes. Each club exhibitor came from a different county. The first prize club exhibit went to Weld County, the second to Larimer, and the third to Sedgwick County. Some of the club pigs were sold, two pigs realizing $18 a hundred pounds, which was $1 a hundred pounds above the market top.

The average price of corn at the farm is usually higher in Illinois than in Iowa, and for the five crops preceding the war the difference was greater in the second half of the corn-consumption year, 4.6 cents per bushel from May to October, than in the first half, 4 cents from November to April.

Agriculture Has Long Lead Over Other Industrial Occupations

Farmers are evincing a disposition to organize as farmers and for agriculture on a broader scale than before, and comparison of the agricultural group with other occupational groups has a new feature of interest. Farmers have been combining to sell oranges and potatoes, to make butter and cheese, to discuss problems of horticulture, to place their "interests" before legislative bodies, to maintain fraternal relationships, to enforce a political program, and in various other ways with cleavage determined by the activity.

Now the county farm bureau has arisen to combine and associate for common industrial purposes all persons engaged in agriculture, and these bureaus are forming State organizations. The track that they are following leads to the solidarity of agricultural occupations in general. These related occupations greatly predominate over every other group, or related group, of occupations, according to the latest census.

Nearly Third of "Occupied"

As an industrial group the agricultural occupations in 1910 contained 32.5 per cent of all persons reported as having occupations, and the women of the white farmer's family were not usually included. The group embracing wholesale, retail, and other trade occupations contained 11.4 per cent of the grand total of more than 38,000,000 persons in the occupation list; next below, domestic and personal service, 9.5 per cent, laundries not included; the composite group of building and hand trades, 8.9 per cent.

The transportation group is composed of all persons employed in water transportation, by steam railroads, by urban, suburban, and interurban railways, by telegraph and telephone companies, and in various other services, yet the total of all is but 8.4 per cent of the entire occupational total. The professional service group had 4.5 per cent of all persons with occupations.

The iron and steel industries, notwithstanding their place of high importance, employed only 4 per cent; mining of all kinds, 2.4 per cent; the textile industries, great in fame, 2.3 per cent; the lumber and furniture group, as little as 2.1 per cent.

Balances Important Groups

As far as numbers are concerned the agricultural group, containing nearly one-third of the 38,000,000 persons with occupations, was large enough to balance all of the building and hand trades; the important transportation group of steam and electric railways, water transportation, telegraphs and telephones, and other groups; the professional classes; the iron and steel industries; all kinds of mining; cotton, wool, and other textile industries; and the lumber and furniture industries. Agriculture balances all of these many and important industries and services.

For every person employed in trade, there were 3 persons employed in agriculture in 1910; for each one in transportation, 4 in agriculture; for each employee in the iron and steel industry, with its many branches and elaborate varieties of work, 8 persons in agriculture; in all of the textile industries, 1 person to 14 in agriculture.

Agricultural production employed more than twice as many persons as were employed in the manufacturing of the products of the farm and in their distribution to consumers. This is the rough indication. As individuals the persons employed in manufacturing and distributing agricultural products counted for less than one-half as much as the persons who produced them on the farm.

MORE AMERICAN DAIRY CATTLE TO FRANCE; CHANCE FOR TRADE

(*Continued from page 1.*)

orders are being placed with other countries, including Canada, and repeat orders will depend on the measure of satisfaction given. The French officials have indicated their desire for large animals of good milking quality. The United States Department of Agriculture lays stress on the need for sending the French people only the kind of stock that will be a credit to the American cattle industry. The bulls especially will determine largely the future reputation of our cattle and should be of conformation and breeding that will insure better herds in the next generation.

According to the officials, the export trade in dairy cattle can be established for years to come by filling the orders with animals of excellent quality; on the other hand, the trade may be quickly lost by shipments of inferior stock. Officers of dairy-cattle associations are being asked to acquaint their membership with these policies, and also to impress on them the importance of building up abroad an esteem not only for American cattle but for the fairness, courtesy, and ability of American breeders.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

Home-Grown Feeds Make Hogs Grow Cheaply, Breeder Finds

The remarkable record in producing pork from home-grown feeds made last year by a Colleton County, S. C., breeder is being used by the local county agricultural agent to stimulate hog production in the community. This breeder, the agent reports, kept 26 registered Duroc-Jersey sows in 1918, and raised 308 pigs, spending only $100 for feed not grown on his farm. This, the agent says, is as good an illustration as can be found of how well South Carolina is adapted to growing hogs on home-grown feeds.

The breeder kept his pigs on fields practically all the time, grazing on Bermuda, rye, rape, turnips, vetch, oats, bur clover, cowpeas, and velvet beans. He also used some home-grown rice flour, corn, velvet-bean meal, pinder meal, and sweet potatoes. This breeder is president of the recently organized Colleton County Live Stock Association, which has for its slogan "More and better live stock," and he is one of a number of leaders who are living up to the slogan and encouraging the entire county to do so.

TOMATO GROWERS FEDERATE COUNTY ORGANIZATIONS

Farmers and tomato growers belonging to the county farm bureau of Kent County, Del., have incorporated a federation of produce-marketing exchanges as the Delaware Farmers' Cooperative Association. The association aims to work for better and more economical production of farm products, improvement of grading, packing, and marketing, and cooperative spirit among the communities. Seven communities have joined the federation, which now has a membership of 600 men. This season the work is confined to cooperative marketing of tomatoes.

The association was formed as a result of a tomato-growers' meeting last February, when it was pointed out that contracts for tomatoes were to be offered growers at a 50 per cent reduction from last year, while the cost of production would be fully as great. The successful tomato-growers' association of Hurlock, Md., was used as a model, and the result has been a form of organization that has received the highest commendation from marketing experts. Under the by-laws of the association each local organization is governed by a president, secretary and treasurer, and an executive committee. The county association is in turn governed by a president, vice president, secretary, treasurer, and a board of directors consisting of one director elected from each local association. A county sales manager is to be assisted by a representative in each local.

Membership Fee

Upon becoming a member of the association, each member pays annual dues of 50 cents, and gives to the treasurer his note for $50, payable on demand with interest. This note is not negotiable and may be collected by the association only in case a member violates his agreements with the organization. Thus the note serves as a guarantee of good faith. All officers of the association handling funds must give sufficient bond. Each member has the right to give away or retain for his own use such produce as he may wish, but he must not sell any produce for which the association has provided selling facilities. Without the consent of the directors he may make no contracts to sell produce for the sale of which the association has provided. Any member may withdraw from the association at any time between December 1 and the following April 1. Expenses of the association are to be met by a small tax on all returns for produce sold by the association.

SELLING HAY COOPERATIVELY

Members of the farm bureau at Otsego County, N. Y., will employ a manager for their hay association on July 1. Individual growers are giving much support to the officers and directors. Branch organizations are being formed, and 200 acres of hay were pledged early. The farm bureau members of the Montgomery County, N. Y., association, although in their first year, have had excellent success. Up to March 1 the association had handled 4,588,443 pounds of hay and 549,159 pounds of straw at a commission of $1 a ton. All expenses of the association had been met and $254.34 was in the treasury.

Southerners Are Satisfied With Diversified Farming

When the boll weevil appeared in the South and made cotton growing unprofitable the general opinion was that a great calamity had befallen the cotton growing States, but farmers of Pontotoc County, Miss., now believe that the pest was a blessing in disguise. Several years ago the weevil forced the farmers of this community into diversified farming, and as a result the county is now far richer than it ever was when cotton was king. The agricultural and live-stock interests have undergone a remarkable change in the past four years, and much of it may be attributed to the educational work and zeal of the local county agent.

Practice County Agent's Teachings

Before the appearance of the boll weevil the rich valley lands of the county often produced a bale of cotton an acre. In 1915 the county made 9,500 bales of cotton, which was an average crop before the boll weevil appeared. This crop of cotton averaged 11 cents a pound, and yielded to growers $522,500. In 1916 the boll weevil caused cotton production to drop to 1,800 bales. This was sold at 17¾ cents a pound, the total being $159,750. In that year it is estimated that $150,000 worth of food and feed was brought into the county. Cotton being their only crop this left the farmers $9,750 after paying for the imported food stuffs. That year it seemed as if every business interest of the county would be bankrupt, but the farmers began to put into practice some of the teachings of the county agent, who told them to diversify their crops and raise live stock.

Until 1916 there had never been a car of hogs, corn, melons, cane seed, peanuts, or popcorn shipped from the county, but during 1918 and the first part of 1919 there were shipped from the county 104 cars of hogs valued at more than $250,000; 468 cars of corn, valued at $567,376; 20 cars of molasses, valued at a little more than $50,000; 15 cars of cane seed, valued at nearly $20,000; 15 cars of peanuts, valued at nearly $30,000; and 7 cars of popcorn, valued at more than $10,000; as well as 46 cars of peas, 7 cars of velvet beans, 4,700 bales of cotton (1918), 176 cars of cottonseed products, 21 cars of cattle, 23 mixed cars of cattle and hogs,

29 cars of eggs, 8 cars of poultry, several cars of lumber, and express shipments of eggs, poultry, butter, and cream, making a total value of more than $2,500,000.

AGENT PUSHES SAFE FARMING; FARMERS PLEASED WITH IT

Safe farming has developed to a greater degree in Washington Parish, La., than in almost any other section of the State, and according to the agricultural agent the farmers are finding that it pays well. When the agent began his work in the parish in 1915 his first survey revealed many farming ills that were very much in need of remedy. Chief among these was washing and wasting of soils on the sandy hillsides which composed the larger part of the farming area. So the agent began to terrace and to teach the farmers how to terrace. He induced the parish police jury and school board to place a terracing level in each ward, and then he proceeded to make regular visits to the wards to give terracing demonstrations. The levels were left in charge of the farmer in each community who showed the greatest aptitude in its use and who would agree to allow other farmers to use it under his supervision. As soon as one community had finished with the instrument it would be taken by the agent to another part of the ward. By this means more than 12,000 acres have been terraced in Washington Parish and the production of the soil has been increased, as well as protected from washing.

Raising More Good Cattle

Up to four years ago hardly anything had been done in the way of improving cattle breeds. During the agent's term of service he has succeeded in interesting a number of farmers in better stock. Purebred sires have been placed in 10 communities and marked improvement in many herds is now noted. In 1918 nine carloads of cattle were shipped to market. A calf club was organized last spring by the agent, and with the assistance of the banks each member was provided with a pure-bred Holstein calf. This movement is expected to stimulate interest in the dairy industry, which so far has been given little attention in Washington Parish.

There were only 3 cattle-dipping vats in the parish four years ago when farm demonstration work was begun. During the agent's second year 28 additional vats were built. There are now 72 vats in the parish, and as the result of systematic dipping last year the parish has been declared tick-free and the Federal quarantine raised. Rapid development is now expected in the raising of good cattle.

Fighting Hog Cholera

As in most other parishes, hog cholera has long stood in the way of the swine industry in Washington Parish and still is a very great handicap to its development. The agent at the present time is devoting especial attention to vaccinating against cholera. He has treated 1,500 head of hogs since January 1, 1919, and is almost daily engaged in this work. Farmers are awakening to the efficacy of the anti-hog-cholera serum and sanitary measures. Conditions are gradually improving, an evidence of which was the first cooperative shipment last spring ever sent out of the parish. This shipment, which was made under the supervision of the parish agent, was composed of hogs from 26 different farms and netted $420 above the prices offered locally. The good prices received have acted as a stimulant to the swine industry of the parish, says the agent.

Through the efforts of the agent, Washington Parish was the first in the State to pool its wool supply and sell it. Last year more than 33,000 pounds were sold cooperatively. By this method buyers are attracted and top prices obtained. The interest in sheep is increasing rapidly; 1,500 grade ewes were brought into the parish last year for breeding purposes through the agent's efforts.

GOOD THINGS COME WHEN TOWN AND COUNTRY HELP

From Chickasaw County, Miss., comes a typical example of what can be accomplished for a community when residents of town and outlying rural sections combine their efforts for mutual benefit. In this county the Houston Progressive League is putting forward every effort to build more good roads in every direction from Houston with a view to aiding marketing conditions and developing the links which bind together the country and town.

In the past Chickasaw County was an all-cotton section, but the league is boosting other branches of farming. The success of its efforts is shown by the fact that for the first quarter of 1919 the shipments of farm products amounted to a total of $137,208, including the following:

One car of cows, $12,000; one car of sorghum, $3,000; eggs, valued at $38,495; poultry, $7,511; field peas, $7,928; sorghum seed, $2,505; 20 carloads of hogs, $42,218; hogs for breeding purposes, $8,700; chickens and turkeys for breeding, $475; butter, $18,776; nine carloads of corn, $8,100; and one carload of peanuts, $900.

This report shows that the farmers of the county have got the idea of diversification and are making good use of it. Reports from the county show that the largest acreage of sweet potatoes in history will be planted this year. The Houston creamery, although in its infancy, is doing good business and paid out to farmers for butterfat more than $18,000 during the first quarter of this year.

HOG AUCTION SALES SUCCESSFUL

The Stanislaus County farm bureau, California, obtained good results from two hog auction sales in April. At Modesto 5 carloads of hogs were sold for $12,274.23. The highest price paid was $18.90 a hundredweight. At Tegner Station 4 carloads were sold for $11,705.03, the top price being $18.25, or within 75 cents a hundredweight of the San Francisco market quotations. Another carload sold for $18.20, a lot of feeders for $16.95, and a pen of sows and bean-fed hogs for $17.10.

SHIPPING CARLOADS OF FOWL

The first solid car of poultry to be shipped from Holmes County, Miss., left Lexington in May. The poultry raisers of the county are not stopping with one carload, but have arranged to ship several others before the season is over. The shipments are being made on a cooperative plan of marketing, all arrangements being made by the local county agent and home demonstration agent, who have been largely responsible for the extensive growth of the poultry industry in the community.

SAVE BY BUYING SEED TOGETHER

Leon County, Fla., farmers have found that cooperation pays. Through the assistance of the local county agent, cowpea seed was purchased cooperatively this year with a saving of several hundred dollars. The seed was obtained at a cost of $2.90 a bushel, while the local dealers were selling it for $4.24 a bushel. So interested have the farmers become in the plan to buy and sell cooperatively that the county agent has assisted them in starting other cooperative enterprises.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Not Take-All After All

Diseased wheat in certain sections of Tennessee and Missouri led local authorities to believe that Australian take-all was infesting their fields. Investigations by cereal-disease specialists of the United States Department of Agriculture have demonstrated conclusively that the damage to Tennessee and Missouri wheat was caused by insect ravages, scab, anthracnose, and rust. The take-all disease, which was first discovered in Madison County, Ill., has not been found elsewhere except in Sangamon and Mason Counties, Ill., and Laporte, Porter, Tippecanoe, and Jasper Counties, Ind. There have been no further discoveries of outbreaks of take-all disease in the United States, and the Federal specialists report that the outbreaks already located and under surveillance will not appreciably decrease the wheat crop of the current year. Leaf rust has appeared in many States, however, and has somewhat shadowed the almost ideal wheat conditions early in May, according to the Bureau of Crop Estimates.

Guard Wheat Against Rats and Mice

The greatest wheat crop ever produced in America will soon be harvested. Grain elevators will soon become veritable treasuries which thieving rats and mice will break into if they can.

Don't feed $2.26 wheat to rats and mice, says the United States Department of Agriculture. Traps, poison, and rat-proof construction will stop their raids.

The arch enemies of stored grain are dampness and rodent pests—rats and mice. An elevator with a leaky roof is only a little worse than one allowing free entry to rats and mice. The present price of wheat makes a telling appeal for rat-proof construction of wheat containers. Now is the time to fill rat holes with cement or cover them with sheet iron, and to build new mouse-proof granaries of either concrete or galvanized sheet iron.

Where rats and mice have plenty of food and are unmolested they multiply overwhelmingly. For example, in Australia, during the great war, sacks of wheat stacked in high piles awaiting shipment, became infested by mice which riddled the sacks and destroyed a large part of the contents before preventive steps were taken. Under similar circumstances a like result would inevitably occur in this country. Where it is impracticable to provide tight containers for stored products steps should be taken immediately to trap or poison rats and mice in the general vicinity of storage buildings, and should be continued till the last bushel is disposed of.

The United States Department of Agriculture furnishes plans and bills of materials for rat-proof granaries, and in its Farmers' Bulletin 896 described various methods of destroying rats and mice. These publications may be had free on application.

Plans to Export Pure-Bred Stock

To work out plans for increasing the exportation of pure-bred breeding stock from the United States to South America, David Harrell and H. P. Morgan, of the Bureau of Markets, will go to South America as representatives of the United States Department of Agriculture. They recently conferred in Chicago with secretaries of various breeding associations. Secretaries representing all breeds of hogs and all but two of cattle attended. Ways and means of stimulating interest among South American stock raisers in importations of pure-bred stock from this country were discussed. It was planned to send a shipment of hogs to South American live-stock shows. This plan, it is believed, is one of the best ways of introducing to South American stock raisers the quality of animals now being grown in the United States.

Tick Fight Hottest Next Month

Next month, July, probably will be the biggest month of the year in the campaign to drive the cattle-fever tick from the South. Past Julys always have marked the apex of the season's work, at least so far as the number of cattle "dipped" is concerned, and the tick-eradication forces of the United States Department of Agriculture and the cooperating State agencies are lining up to present a solid front to the cattle parasite. New records for March and April "dippings" were set this year, and it is believed that May, also, went "over the top," although complete reports have not yet been tabulated. Reports from the field indicate that this June will prove to have been the biggest June in the antitick campaign. Working up to this climax, the tick-eradication forces are working to make it the best July on record. After July there may be a decrease in the total number of dippings, but it is essential that the work be kept up throughout the season to foil the reproductive powers of the tick, which are so marked that a few of the parasites are capable of producing a million within a few months. According to the reports reaching the United States Department of Agriculture, public sentiment everywhere, among the general public and business men as well as among farmers and live-stock owners, is awakening fully to the necessity of ridding the South from the insect enemy that has impeded the proper development of cattle raising and dairying in this section of the country.

Egg Circle Markets at Profit

The Harrisburg (Ark.) egg circle, organized late in March at the request of local citizens having eggs to sell, shipped out to market 575 dozen eggs during the first week of operation. The first 120 dozen netted the shippers 22 cents; the other 455 dozen netted 33 cents. The eggs sold for a total of $216.20, and eggs brought home $189.19 to the producer.

Cutting Controls Alfalfa Ailment

Alfalfa yellows, an ailment which if neglected results in permanent injury to alfalfa, can be controlled in only one way, says the United States Department of Agriculture—by cutting the crop as soon as the yellows appear. This disease is characterized by yellow discoloration of the leaves, which in some instances assume a copperlike hue. The growth of the plant is checked as soon as the yellowing attacks the majority of the leaves. The leaves fall off, the growth of the plants is stunted, and unless the disease is checked in time the alfalfa plants frequently are permanently injured.

Ordinarily the yellowing appears on the second or third crop of alfalfa, from June 1 to September 1. The cause has not been identified, and no effective treatment other than immediate cutting of the crop has been found. If the growth is adequate, the hay should be raked, cured, and stored as live-stock roughage. If the growth is only enough to provide clippings, the best plan is to let them remain on the ground. In most instances the subsequent cuttings of alfalfa will show no

evidences of yellowing where the crop which was diseased is handled in the outlined manner.

All the commercial varieties of alfalfa adapted to agriculture throughout the northern two-thirds of the United States are susceptible to alfalfa yellows.

One-third Acre Produces $235

Rose Burda, of Stark County, N. Dak., was awarded the championship of the State in the boys' and girls' gardening club project last year. On one-third of an acre she grew $235.94 worth of vegetables. Her club is one of thousands organized by the United States Department of Agriculture and State agricultural colleges.

"I joined the garden club again this year because I found it so interesting last year," she reported to her county leader.

"One of the troubles I had with my garden was the heavy rains. Twice the garden was flooded. The first rain washed out some of the vegetables and drowned some. The damage wasn't so bad, as the vegetables soon picked up. The second heavy rain washed out over a hundred feet of cabbage. The neighbors were supplied with cabbage out of my garden, for some of it was carried as far as 2 miles.

"The most interesting work was canning what my garden grew. I canned 47 quarts of vegetables by the cold-pack method. I also made over 30 quarts of pickles. I dried 7 pounds of corn and 5 pounds of beans. I stored for winter 4 bushels of carrots, 2 bushels of onions, one-half bushel of parsnips, 5 bushels of rutabagas, and 100 pounds of cabbage. This year I have also canned 25 quarts of beef. It kept fine and tasted like fresh meat when used."

Club Profits Provide Comforts

Thousands of American homes possess comforts and luxuries for which they are indebted to the boys and girls in the families who have earned the equipment by work in home gardens and canning clubs. These clubs are organized by the Department of Agriculture and the State colleges, and by them boys and girls make money as well as provide canned fruits and vegetables for their own families. Steam pressure cookers, washing machines, pianos, vacuum cleaners, kitchen cabinets, and innumerable other things which make housework easier and home life happier are bought with their profits by the club members. A 14-year-old home canning club girl in Oconee County, Ga., bought a player-piano and new furniture for the parlor with the money she earned in canning. A girl in Frederick County, Md., furnished the kitchen in her home with modern equipment paid for with prize money awarded for her canning exhibits. Two girls in Kankakee County, Ill., repapered and painted their home with club profits. Club work encourages thrift, and gives the boys and girls an opportunity to convert some of their spare time into money.

Irrigation Farms Need Labor

According to specialists of the United States Department of Agriculture, there is plenty of farm work for anyone who wants a job pitching hay, shocking grain, or laboring at other farm tasks throughout the western irrigation belt. A recent report from the Truckee-Carson irrigation project says that labor is extremely scarce and farmers are paying $4.50 to $5 a day, including board and lodging, for help during the haying season. Fourteen-year-old schoolboys are being paid $3 a day plus their board and lodging. Indications are that harvest conditions will be as bad, if not worse. The general impression that there is a labor surplus and a work deficit throughout the country certainly is not true on the reclamation projects.

Study Retail Meat Marketing

A series of conferences with retail meat dealers has been held by the Bureau of Markets of the United States Department of Agriculture, the plan being to collect information that will be of value to the meat trade and to consumers of meat. Specialists of the bureau have already held meetings in 15 cities, from San Francisco to New York, and have made plans to hold similar conferences in sections not yet visited. It is hoped to reach important conclusions regarding the retail meat situation and to make tangible suggestions to dealers and others interested relating to systems of accounting used by retailers, trade customs, seasonal demands, and efficiency of the different types of markets. It is planned to work out a simple accounting system and to make up a manual for the guidance of retailers and consumers.

Whole Communities Canning

Canning demonstrations in the Ozarks closely resemble community picnics, with plenty of fun as well as instruction. In many neighborhoods the announcement of a lecture by the home demonstration agent will bring out every man, woman, and child for miles around.

A club in Searcy County, 20 miles from the county seat and a railroad, is named The Snowball. This club—like many others in Arkansas—purchased a steam pressure canner last year. The husbands of the members became so interested in canning that a month after the club was organized the men built a house for the canner, work tables, and other equipment. One man donated the trees and others cut them into logs and hauled them to a sawmill. The whole community is proud of this kitchen.

At the September meeting of the Horton Bend Club, in the same county, every person in the settlement was out, in spite of a heavy storm. The men were as enthusiastic as the women and did as much work. They packed cans of string beans, carried water, and operated the canner. The women said they couldn't can without the men, and the men said they wouldn't part with the canner for three times the cost. At this demonstration the club canned 120 half gallons of beans and 7½ gallons of tomatoes.

The agent of Searcy County does most of her traveling by horseback, covering long distances with many streams to ford. It is the only mode of travel by which she can reach all parts of the county.

Garden on Boston Commons

A demonstration garden has been planted on the historic Boston Commons, and during the active gardening season a small information booth is being maintained. According to the report of a representative of the United States Department of Agriculture, who recently visited a number of cities in the New England States, the food-production campaign in those States is as active this year as it was during war times. In many cities the schools have attempted to include school-garden work as a part of the campaign, but in Boston they are confining the work primarily to giving instruction in gardening. In that city weekly conferences are held for teachers and special instruction in garden work is given.

"Americanized Cotton" Marketed

Most recent information is that the bulk of the American-Egyptian cotton crop of 1918 has been marketed so that there will be practically no carry over of this kind of cotton. This condition will operate to stabilize the market for this type of cotton, the culture of which is now well established in several sections of the western irrigated belt. The crop of last year amounted to approximately 35,000 bales, and prospects are that the yield of the current season will be as large, if not larger.

Making Strength from Milk

Plenty of milk is one of the simplest ways of improving the general health of

children, authorities believe, and home demonstration agents of the United States Department of Agriculture and the State colleges are making special efforts to create public interest so that every child will get his share. In some cities, where many children have been found undernourished and undersized, milk is served in the schools. In 19 Indianapolis schools 2,000 children have been served a half pint of milk each school day during the past year. The milk is delivered at the schools in individual half pint bottles. A hole is punched in the cap of the bottle and a straw is inserted. The children help themselves as they march past, and afterwards they return the empty bottles to the rack. This work in Indianapolis is maintained by the parent-teacher clubs, but it is largely self-supporting. The majority of the children pay 3 cents a day, or 3½ cents for milk and crackers. Those who can not pay get the milk free. The children are measured and weighed, and the chart of each child is kept in his schoolroom, so he may see whether he is up to normal or below. All the children are much interested in weighing what they should. The teachers report a marked improvement in the schoolwork and want the work continued. The Indiana home demonstration agents cooperate with the county welfare committees in weighing and measuring the children.

TURF DISEASE IS CAUSE OF "BROWN PATCH" ON LAWN

Objectionable "brown patches" appear on fine lawns, greenswards, and the putting greens of golf courses usually during the hot, moist weather of summer, the disease being most noticeable when the weather is hot and muggy, and on ground which is kept too moist by insufficient drainage or heavy sprinkling. The brown spots—caused by a fungus—are at first more or less circular and grow in centrifugal fashion, becoming a foot or more in diameter.

During the early morning many of the spots are covered with a fine mildew. Later in the day the border of actively growing spots is smoky green in color where the grass leaves are dying. When the disease is abundant and a merging of the spots occurs, an entire putting green often will be completely brown and appear as if dead. Peculiarly enough, with the coming of cool weather in fall most of the infested spots recover, indicating that the grass has suffered no permanent injury. However, occasional diseased spots are completely killed. Apparently the brown spots radiate in the form of a small circle from one unit and continue this process, season after season, until large circles are formed. Occasionally a green spot is found in the center, but usually the whole patch is brown.

Prevention is the practical way of decreasing the damage wrought by this turf disease, according to the United States Department of Agriculture. Preventive measures consist in providing thorough drainage, both of the surface and subsoil. Watering should be done in the morning in the case of golf courses, the purpose being to have the courses as dry as practicable during the night.

When a person is sufficiently familiar with the time of appearance and development of the "brown patches" among grass plants to forecast the occurrence of the disease he can partially control and check its damage by persistent spraying with Bordeaux mixture, in amount just sufficient to moisten the leaves and crowns of the grass, without thoroughly wetting the ground. Frequent applications are necessary.

RAISING HEALTHY CHICKENS

To be successful in raising chickens it is necessary to have healthy and vigorous breeding stock, for the lack of vigor in the newly hatched chicks is often traceable to weak parents. Only the most vigorous and the best grown birds should be put in the breeding yards. Each bird should be full of life and energy and free from any serious deformity. Yearling hens are usually better than pullets for breeders, for the reason that the hens are more mature and do not lay so many eggs during the early winter, and consequently do not reduce their vitality so much before the breeding season. Vigorous hens 2 to 4 years old can often be advantageously retained in the breeding yard. The male bird chosen should be young and active. An early hatched well-developed cockerel is usually satisfactory, or a good vigorous yearling or 2-year-old cock may be chosen. The hens used for breeding purposes should be given the best care possible; they should be provided with large runs, and should not be forced for heavy egg production during the early winter.

SCIENTIFIC FEEDING

To supply food in the right proportion to meet the various requirements of the animal, without a waste of food nutrients, constitutes scientific feeding. It is by carefully studying the composition of feeding stuffs, the proportion in which they are digested by different animals and under different conditions, and the requirement of animals for the various food nutrients when at rest, at work, giving milk, producing wool, mutton, beef, pork, etc., that the principles of feeding have been worked out. In applying these principles in practice the cost and special adaptations of different feeding stuffs must, of course, be taken into account.

FARMERS PURCHASE POTATO SPRAYER

Members of the farm bureau in a community of New Castle County, Del., have purchased cooperatively a 4-row, 12-nozzle potato sprayer. The machine was purchased from the county farm bureau at a considerable reduction, and so far as practicable the spraying will be conducted along lines that will demonstrate to farmers the value of spraying for blight in potato growing. Owing to the increased prevalence of potato blight the farm bureau has obtained for every community in the county the privilege of purchasing a sprayer at a reduced rate.

THE STINGY FEEDER CHEATS HIMSELF

The cow requires not only materials for maintenance, but must also have protein, fat, and carbohydrates to make milk from. The milk contains water, fat, protein (casein, or curd), sugar, and ash, and these are all made from the constituents of the food. If insufficient protein, fat, and carbohydrates are contained in the food given her, the cow supplies this deficiency for a time by drawing on her own body, and gradually begins to shrink in quantity or quality of milk, or both. The stingy feeder cheats himself as well as the cow.

MOST HOGS IN IOWA

In number of hogs on farms, Iowa is by far the most distinguished State in this country. The estimate of the Bureau of Crop Estimates for 1919 is 10,925,000 hogs in Iowa, 5,724,000 in Illinois, 4,943,000 in Missouri, 4,668,000 in Indiana, 4,266,000 in Ohio, 4,250,000 in Nebraska, and 3,043,000 hogs in Georgia. Every other State is below 3,000,000. Iowa's hogs are about one-seventh of the Nation's total, and nearly double the number of Illinois, the State next below.

For the very few years to which the information is confined, the consumption of peaches in this country has been about one-quarter to one-half of a bushel per capita; of pears, about one-tenth of a bushel; of oranges, about one-fifth of a box; of cranberries, about one pint.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JULY 2, 1919 No. 48

FARMING METHODS ADVANCE TWENTY YEARS DURING WAR

Improved Practices Adopted in Emergency Here to Stay

Sufficient Evidence to Show that Agriculture Has Made Rapid, Sure, and Substantial Progress, According to Mr. Christie

During the past two years the methods of production and conservation employed by the farmers of this country have advanced 20 years beyond what they would have been during peace times, says G. I. Christie, Assistant Secretary of Agriculture. Prior to 1914 and even up to the declaration of war by the United States, there were farmers in every community who were not interested in county agents, farmers' institutes, the agricultural colleges, or the United States Department of Agriculture. But when war was declared and Uncle Sam asked the farmers to grow more foodstuffs of every kind, those who had before assumed an attitude of indifference responded to the call. Throughout the Nation these farmers, with a spirit of patriotism and an additional inducement of fair prices and assurance of reasonable compensation for their expenditures, called upon the Federal department and other agencies that could give them information. The attitude as well as the spirit of the farmers changed from peace-time to war-time farming.

Not Going Back to Old Methods

Improved methods and practices adopted and now being applied have come to stay, says Mr. Christie. In future farming operations we should have little question as to the practice of the man who has treated his oats for smut and has increased his yield; the man who has applied fertilizer to his wheat and has increased his crops 5 to 10 bushels an acre; the man who has sought information on the feeding of cattle and has found that by adding protein to the ration he can produce a pound of beef with 9 pounds of corn where the old ration required 13 pounds of grain; the man who was encouraged to build a silo through which he is able to feed a carload of cattle with the crops from 16 acres of land when before it required 26. Men who have learned these lessons, have seen the results, and have profited by them are not going back to the old-time methods. Farmers are reaching out and inquiring in a broader way for additional aid.

Improved Methods Increase Wheat Yields

Last fall farmers planted 49,000,000 acres of wheat. The condition of these crops is excellent and there are prospects for a bumper yield.

> PUBLIC AND PRIVATE VALUE
>
> "We have found the work of your bureau in tuberculosis eradication a great help in the management of the herd on Mount Hope Farm," says a letter to the United States Department of Agriculture from E. Parmalee Prentice, of Williamstown, Mass. "Your service is prompt, your inspectors are competent, and the health of my cattle at the present time is due to the fact that last year you detected and excluded from my barn an animal that was affected. Such work as this is of public as well as private value."

"Favorable weather has been an important factor in securing the present stand of wheat," Mr. Christie says, "but the crop has been more the result of the good methods of farming that were employed in the fall of 1918. There were more tons of fertilizers applied on this wheat than during any previous year. There was more early plowing. There was better cultivation. There was better selection of varieties and better treatment of the seed. There has been more top-dressing of the crop with straw and manure than ever was known in any other year. Part of the crop is due to the weather, some just to plain luck, but the big results that are showing at this

(*Continued on page 8.*)

NEW REGULATION TO RESTRICT TRADE IN TUBERCULAR CATTLE

Will Be Effective in Campaign for Eradication of Disease

Special Object Is to Prevent Interstate Shipment to Cattle Breeders and Dairymen—May Be Shipped for Slaughter

The regulation prohibiting, after July 1, 1919, the interstate movement of cattle for breeding or dairy purposes unless they are properly tuberculin tested will prove to be a long step toward the control of tuberculosis and its eventual eradication in this country, according to officials of the United States Department of Agriculture. It supplements and strengthens State regulations on this subject.

The object of the regulation is specifically to prevent the interstate shipment of diseased animals to cattle breeders or dairymen who are trying to drive out or keep tuberculosis from their herds. Cattle consigned to a public stockyard and steers and strictly range cattle may be moved interstate without restriction under the new regulation.

Copies of the regulation, which has been issued by the Secretary of Agriculture and is known as Regulation 7 of Bureau of Animal Industry Order 263, are being printed, and will be available soon for cattle owners, dealers, veterinarians, and others who may desire them.

The regulation of interstate movement of cattle follows the same principle used successfully in the control of other animal diseases, and has been recommended to the Department of Agriculture by many cattle owners as an essential part of the campaign against tuberculosis, which is now getting well underway, and in which the Federal Government and 42 States are cooperating.

What Cattle May Be Moved

Cattle known to be tubercular may be moved interstate for immediate slaughter under Federal inspection. They must be marked for identification; must be accompanied by a certificate showing their

condition, that they may be shipped interstate, and the purpose for which they are shipped; transportation companies must identify the cattle as tubercular on waybills and other papers; cars or boat compartments in which they are moved must be cleaned and disinfected under bureau regulations; and the cattle must not be transported in cars or boat compartments containing healthy cattle or hogs unless the latter are for immediate slaughter.

Pure-bred cattle which have been shipped interstate for breeding or feeding purposes, and which have reacted to the tuberculin test subsequent to such shipment, may be reshipped interstate upon proper certificate for purposes other than slaughter, provided they are consigned to the original owner at the same point of origin; the reshipment must be made within four months of the original shipment; they shall not be shipped to any State or Territory that does not provide for quarantine of tubercular cattle; they can not again be shipped interstate except for immediate slaughter under Government inspection; requirements of identification and disinfection must be observed.

Briefly, heifers may be moved interstate for feeding or grazing on certification that they will not be used for other purposes, and cows may be shipped interstate from public stockyards on affidavit to the same effect. Bulls may be shipped from public stockyards for feeding provided the owner or shipper makes affidavit that they are for feeding only, and the State to which they are shipped provides for quarantine. The regulations give further details.

Certificates with Accredited Cattle

Cattle from a herd officially accredited as free from tuberculosis may be shipped interstate if accompanied by official certificates showing they are from such a herd.

Tuberculin tests for the detection of tuberculosis may be made by veterinary inspectors of the Bureau of Animal Industry at public stockyards or regular bureau stations or by a veterinarian of the State of origin, authorized by the State and approved by the Bureau of Animal Industry.

The number of hogs on farms in Iowa at the beginning of this year, 10,925,000, was exceeded in only five great nations before the European war. Germany had about 25,500,000 hogs, Brazil over 17,000,000 hogs, Austria-Hungary and the Russian Empire each about 15,000,000 hogs, and China a number of unknown but huge proportions.

MUTUAL COMPANIES CARRY SIX BILLION DOLLARS INSURANCE

Greater Degree of Uniformity Would Result in Benefit to Farmers

Information As to Methods of Operation Furnished in Questionnaires Sent Out by United States Department of Agriculture

Nearly 2,000 farmers' mutual fire insurance companies in the United States have a total of $6,000,000,000 of insurance now in force. These companies in general have shown a high degree of stability and have proved of much value to their members, specialists of the United States Department of Agriculture say in Department Bulletin 786, which is a report of the prevailing plans and practices among such companies obtained from replies to questionnaires sent out by the Bureau of Markets. These companies are organized in all States except Florida, Louisiana, New Mexico, Arizona, and Nevada, more than four-fifths of them being located in the Middle Atlantic and North Central States.

Each Member Has One Vote

Of the 1,161 companies replying to questionnaires, 124 were incorporated by special acts of Congress, while 967 were incorporated under general statute and 21 existed as voluntary associations without incorporation. The smallest membership of any company was 25 and the largest was 32,433, the average membership being 1,532. Nearly four-fifths of the 1,161 companies reporting on membership were organizations of less than 2,000 members. The prevailing plan is to allow each member one vote regardless of the amount of insurance or number of policies held. More than four-fifths of the companies follow this plan.

The average, as well as the most common, number of directors for the companies reporting was nine, the favorite term for directors being either one or three years. In a number of laws more recently enacted it is specifically prescribed that the term of a director shall be three years, and that one-third of the number shall be elected each year.

All the companies returning a questionnaire gave information concerning the hazards against which insurance was written. Thirty-three companies insured against fire only, 958 against fire and lightning, and 170 gave combined protection covering fire, lightning, and windstorms. The giving of the last-named form of protection can be engaged in with safety only by the larger companies with their risks widely distributed. The more local mutuals in many States have cooperated with one another in the organization of State-wide companies to care for the windstorm insurance of their members.

Highest Maximum Risk is $15,000

Among the 898 companies which reported the maximum single risk accepted by them the highest for any company was $15,000, and the lowest $750. A total of 349 companies reported their maximum single risks as large as $4,000, and only 58 companies provided for a maximum of less than $2,000. The average maximum risk for all companies reporting was $3,994.

The bulletin points out that there is a wide variety in the plans and practices of farmers' mutual insurance companies and that they could be greatly improved by standardization. While rigid uniformity may not be desirable, a reasonable approach to uniformity in the plans and practices, at least within a given State, would be a material advantage. The general public would be more easily convinced of the soundness and real value of these companies as a class. The approval and support of the insurance department of the State would be more easily secured than is sometimes the case under present conditions. Financial institutions which lend money to farmers would more readily accept the policies of these companies as collateral, and lastly the companies themselves would find it easier to cooperate with one another in matters of reinsurance or joint insurance, as well as in meeting other problems that arise.

FACTORS IN FEED SELECTION

In selecting feeding stuffs for his stock the farmer will naturally be governed by the conditions of the market. The cost of feeding stuffs is controlled by other factors than the actual amounts of food materials which they contain; indeed, there often appears to be very little connection between the two. Bearing in mind that the protein is the most expensive ingredient, and the one especially sought in concentrated feeds, the farmer can make his selection with the aid of tables showing the digestible materials in 100 pounds.

The ordinary average annual production of small flocks of hens given good care is commonly estimated at 10 dozen eggs per hen. Two ordinary hens for each member of the family will supply about 20 per cent more eggs than the average city family now consumes.

Tick Eradication Campaign Gains Momentum Throughout Entire South

Reports of the fight in Texas against the cattle fever tick become rosier with each month that is added to 1919—the year that is expected to see the removal of a large part of Lone Star territory from the domination of the parasite.

Cattle owners in Texas are enlisting voluntarily in the campaign conducted cooperatively by the State live stock sanitary commission and the Bureau of Animal Industry of the United States Department of Agriculture. Cattle are being put through the dipping vats in unprecedented numbers. Ticks are being killed as they never were killed before. The tick is losing ground every day, and with a continuation throughout this season of the effective efforts now being made no doubt is entertained by Federal officials that next December will see the release from Federal quarantine of the greatest amount of Texas territory ever released in any one year.

Important to Whole Country

This will mean a whole lot to Texas farmers, cattlemen, business men, and the people generally. It will mean much also to the entire American people, for freedom from the cattle tick will mean more cattle and more meat from Texas to feed this country and the world. Furthermore, a big antitick year in Texas will be the best thing that could happen to help forward the fight against the tick in other Southern States. Texas has been regarded as the stronghold of the tick, but when the Lone Star State deals such a blow to the cattle parasite the other tick-infested sections are given an impetus to get on the tickless band wagon.

What is being done in Texas is shown by the report for May from the northern section of the State. In that month and in that section there were 1,628,607 dippings of cattle—breaking all previous records. The number of vats built during the month was 254, making 4,271 now available. The same tendency is shown by reports from south Texas. More cattle are being dipped and more dipping vats are being built there.

County officials in all counties where the work is being carried on are lining up with the State and Federal authorities and are evidencing their interest by county appropriations to help drive out the tick. Obstructionists occasionally impede the work by destruction of dipping vats, but in every case they are made to know that they are working against the best interests of their communities, and opposition of this sort is gradually disappearing.

In north Texas especially satisfactory progress is being made in Jack, Parker, Hood, Bell, and Van Zandt Counties, where preliminary work was carried on last year. Cattle raisers of Burnet County have hired attorneys to assist in prosecuting violators. Good progress is being made in Tarrant County, where the Fort Worth stockyards are located. The officials of Tarrant County are cooperating and providing all the assistance requested.

State Regulations Effective

The State regulations now in effect governing the movement of cattle out of the southern division of the Fort Worth stockyards and consigned to tick eradication counties are practically the same as the requirements for moving cattle interstate or to free areas. As the unrestricted market for tick-infested cattle in Texas is at least 150 miles south of Fort Worth, and as the greater part of trade territory for stock cattle on the local yards is now in tick eradication or released territory, there is a greater demand for apparently free cattle on the southern market and a corresponding reduction in the demand for tick-infested cattle.

It is reported from south Texas that good progress is being made in Houston, Madison, Walker, Montgomery, Washington, and Austin counties. In Harris County few ticks have been found in territory that was worked systematically last year, and these were confined to the section of the county where opposition prevailed last season. Good showings are also being made in Galveston County and in Leon County, especially the southern half. In Brazoria County 175 of the leading live-stock men have petitioned the commissioners' court to call an election for the purpose of driving the ticks from the county. However, since such an election would cause considerable delay, a plan of cooperation is being arranged by which voluntary eradication work will be done in the section east of the Brazos River.

NEARLY ALL GEORGIA COUNTIES BUILDING VATS FOR TICKS

The activity of the campaign against the cattle-fever tick in Georgia is shown by the fact that a number of counties in which active work is not yet begun are preparing to build dipping vats this year and to do other preliminary work in order to prepare for an aggressive fight against the cattle parasite. The field office at Atlanta of the Bureau of Animal Industry, United States Department of Agriculture, received more applications for assistance in vat building early in the season than it was able to care for, but efforts are being made to meet all demands.

Practically all the counties scheduled to do systematic eradication work this year finished their preliminary arrangements in April, and began systematic dipping. Reports from Georgia describe the headway that is being made as very satisfactory.

ARKANSAS FARMERS PROVIDE PLENTY OF TICK POISON

Plenty of ammunition for use in this year's campaign against the cattle fever tick is on hand in Arkansas according to reports of the United States Department of Agriculture. Early in the season 180 tons of arsenic had been paid for and delivered to the counties conducting eradication work and it was estimated that not more than 10 tons additional would be required in the State for this season.

With this supply of material on hand, added to the fact that 3,392 cattle dipping vats are available for use, and that local officials are evidencing marked disposition to cooperate, the prospects for big results this year are regarded as extremely encouraging.

Considerably less tick infestation was found at the opening of the season than had been expected and this was especially true in counties where systematic work was carried on last year. The condition was attributed to the fact that work was started fully six weeks earlier than in any previous year, and that much more territory than in former years is organized and actively at work. Local authorities and interested citizens, moreover, were more determined than ever that dipping should be regular and thorough.

NORTH CAROLINA GETS READY FOR BIG DRIVE NEXT YEAR

Reports to the Bureau of Animal Industry of the United States Department of Agriculture tell of work in the tick-infested sections of North Carolina that promise effective work in the late summer and fall of this year and throughout the season of 1920 in driving out the destructive cattle parasite.

Preliminary work, in which the construction of dipping vats plays an im-

(Continued on page 5.)

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

HIGH PRICES FOR GOOD WOOL—CONDITIONS APPROACH NORMAL

High prices are being maintained for choice wool, particularly medium and finer grades, according to the detailed wool-market report just issued by the Bureau of Markets, Department of Agriculture. Buyers are showing a willingness to pay for quality. Some large operators have shown a hesitancy to purchase the new clip at prices asked by the producer, while others are free purchasers. In some cases lower prices prevail in the seaboard markets for the same class and grade of wool than at country points. That conditions are again approaching normal is indicated by the fact that on May 1 about 83 per cent of the woolen cards and spindles and 75 per cent of the worsted combs and spindles were in operation, compared with approximately 73 per cent and 65 per cent, respectively, for April. The machinery on Government orders is a negligible quantity. Wool consumption decreased steadily from the time the armistice was signed until April. The figures for April exceeded all previous months this year, and showed an increase of 32 per cent over the preceding month. The May series of London Wool Auctions closed with advances from 5 to 10 per cent for choice combings, and crossbreds recovered and finished firm. During the May series 107,000 bales were offered, and only a small portion were withdrawn.

The wool quotations follow: Bright fleece wools, Ohio, Pennsylvania, West Virginia, Michigan, New England States and similar wool—fine Delaine, 69 to 73 cents; one-half blood staple, 62 to 70 cents; three-eighths blood staple, 60 to 65 cents; one-fourth blood staple, 58 to 63 cents; low one-fourth blood staple, 40 to 47 cents; Indiana, Missouri, New York, Illinois, eastern Wisconsin, southeastern Iowa, northern Arkansas, and similar wools—fine Delaine, 60 to 66 cents; one-half blood staple, 59 to 65 cents; three-eighths blood staple, 56 to 63 cents; one-fourth blood staple, 55 to 60 cents; low one-fourth blood staple, 39 to 46 cents; semibright wool, western Wisconsin, western Iowa, Minnesota, parts of Kansas and Nebraska, and North and South Dakota—fine staple 52 to 60 cents; one-half blood staple, 59 to 65 cents, three-eighths blood staple, 49 to 55 cents; one-fourth blood staple, 48 to 53 cents, low one-fourth blood staple, 37 to 44 cents; southern wool, clear wool, 55 to 59 cents; light Burry, 50 to 53 cents; medium Burry, 37 to 40 cents; hard Burry, 25 to 35 cents; territory wool—Idaho, Wyoming, Montant, and Utah, graded, one-half blood staple, 55 to 63 cents; graded one-half blood clothing, 44 to 52 cents; graded three-eighths staple, 51 to 55 cents; graded three-eighths clothing 42 to 49 cents; graded one-fourth blood staple, 46 to 53 cents; graded low one-fourth blood staple, 40 to 44 cents; Texas, 12 months fine, 35 to 49 cents; 6 months fine, 39 to 48 cents; California 12 months fine, 46 to 57 cents; 6 months fine, 44 to 54 cents.

ARMY WORMS ARE COMING EAST; POISON BRAN BEST WEAPON

The outbreak of army worms which started in Texas during late May has spread northeastward, and is now general in the Central Mississippi Basin, says a statement issued June 20 by the United States Department of Agriculture. Reports show the infestation to be rather severe in parts of the States of Oklahoma, Missouri, Iowa, Illinois, and Indiana. It is quite possible that the northern States east of the Appalachian Mountains may be invaded within the next three or four weeks.

The simplest and most effective remedy for army worms, say the Federal entomologists, is the poison-bran bait made according to the standard formula as given for grasshopper and cut-worm control. It is as follows: Wheat bran, 25 pounds; Paris green or white arsenic, 1 pound; lemons or oranges, 6 finely chopped fruits; low-grade molasses, such as refuse from sugar factories, or cattle molasses, known as black strap, 2 quarts; water as needed, usually from 2 to 3 gallons.

The bran and Paris green or arsenic are thoroughly mixed while dry. The fruits are then finely chopped and added, and lastly the diluted molasses is poured over the bait and the whole mass thoroughly kneaded and mixed. If lemons or oranges can not be secured, crushed ripe tomatoes, watermelons, or other fruits may be added. The bait should be strewed thinly and evenly over the ground in the path of the advancing worms.

This bait may be used safely in alfalfa and corn fields where it is desired, if possible, to save the crop for forage purposes.

FOOD NEEDS OF ANIMALS DIFFER WITH THEIR WORK

The primary functions of food are to repair the waste of the body, to promote growth in immature animals, and to furnish heat and energy. And for these purposes only the digestible portion of the food is to be taken into account. The amount of digestible protein, fat, and carbohydrates in a ration is an indication of its fitness to fulfill these purposes. The next question is, How much of these materials does an animal require, and in what proportion should they be given? This differs with the purpose for which the animal is kept, whether it is growing, being fattened, used for work, or making milk. An animal standing in the stall requires less food nutrients than one which is worked hard every day. That is, in drawing heavy loads the animal breaks down or consumes a certain amount of muscular tissue, which must be replaced by protein in the food, and it uses energy or force which is also furnished by the food nutrients. In standing in the barn it still requires some protein, fat, and carbohydrates to perform the necessary functions of the body to maintain heat in winter, to grow a new coat of hair, etc. But if it is fed the same ration as when working hard, the tendency is to get fat or waste the food.

PROVIDE DUST BOXES FOR HENS

Chickens never wash, as many other birds do, but cleanse themselves of insects by wallowing in soil. Where board or cement floors are used, some means of dusting should be provided during the winter months. For a flock of 50 to 60 fowls a dust box 3 by 5 feet or 4 by 4 feet will be found large enough in most instances, and should be placed where it can be reached by sunlight during as much of the day as possible. Fine, light, dry dust is the best, but sandy loam is good. Road dust is recommended by many, but it is apt to be filthy. Coal or wood ashes may be mixed with the soil if desired.

TICK ERADICATION GAINS MOMENTUM THROUGHOUT SOUTH

(*Continued from page 3.*)

portant part, is being conducted in nearly every county where the tick holds sway. For instance, Beaufort County has agreed immediately to construct 20 vats, approximately half of the number that will be required before systematic work can be begun. Pitt County and Bertie County, likewise, have begun vat construction, and active work is going forward in other counties.

OKLAHOMA HELPS COUNTIES IN WAGING TICK FIGHT

An obstacle which threatened to delay the final extermination of the cattle-fever tick in Oklahoma is believed to have been surmounted when the Oklahoma State Legislature recently appropriated $40,000 to aid the work in counties where property is of small assessable value. Through this help it is believed that several of the counties unable to complete tick eradication on their own resources will be placed this year or next year in the territory freed from the tick and from the Federal restrictions against the movement of cattle from tick-infested territory.

According to recent reports to the Bureau of Animal Industry of the United States Department of Agriculture, systematic tick-eradication work is being carried on in Pittsburg, Coal, Le Flore, Carter, and Latimer Counties, and the infested portions of Muskogee and Love Counties. The reports indicate that public as well as official sentiment is backing the effort to rid the State of the parasite which has impeded the development of profitable live-stock raising and balanced farming.

MILK IS GOOD FEED FOR POULTRY

When properly fed, milk makes an excellent feed for poultry. In feeding sour milk or buttermilk, however, the feeder must exercise care not to give too much or bowel trouble will likely result. Skimmed milk is an economical feed. In skimming, the most valuable food constituents—the nitrogenous substances—are left in the skimmed milk. Not only does this skimmed milk contain much nutritive material, but it contains it in a form which, as a rule, is easily digested. Skimmed milk may often be advantageously substituted in part for meat. Milk may be used in mixing the soft feed, or it may be given the fowls to drink in addition to water.

Rhodes Grass Proves Valuable Crop in Warmer Parts of United States

When Dr. David Fairchild, agricultural explorer of the United States Department of Agriculture, was traveling in South Africa in 1903 his attention was attracted by a promising grass being grown extensively on the estate of Cecil Rhodes. He secured 30 pounds of seed and sent it to this country, where the department's plant specialists gave it a trial and introduced it into the Southern States. Now Rhodes grass is proving a valuable crop, and is being grown extensively in the warmer parts of the United States from Florida to Texas, and in southern parts of New Mexico and California. Its value and use, and how it should be grown, are told in Farmers' Bulletin 1048, recently published by the United States Department of Agriculture.

Rhodes grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of live stock, says the bulletin. In pastures favorably located, Rhodes grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender, and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market.

Sometimes Grown as Annual

Rhodes grass rarely survives the winter where the temperature falls to 15 or 18° F., but is sometimes grown as an annual in regions of colder winters, as it will give two or three cuttings of about 1 ton each during the summer and fall. It does best on a soil which is fairly moist, although it will live and make growth during several months of drought. A deep, rich loam is best suited to its growth, but it will withstand soils which are too alkaline for alfalfa, sugar cane, cotton, and many other crops. This makes it particularly valuable in some of the southwestern irrigation regions where the water is somewhat alkaline.

The seeds of Rhodes grass are very small and light, therefore the ground on which they are sown should be well prepared. As early in the spring as the soil is in proper condition, or in late summer, the ground should be well plowed and then harrowed until the surface is fine and even. While seeding may be done at any time during warm weather, early spring is usually preferable. Young plants are rather tender and are easily injured by either frost or drought. Summer seeding is often successful, but weeds are more troublesome then than in the spring and the moisture conditions are usually less favorable. October seeding often gives good results.

When the land is in good condition, and well cleaned seed is used, 7 to 8 pounds an acre are sufficient, but some planters use much less. From 2 to 3 pounds are sufficient where a press drill is used on well-prepared soil. In regions of abundant rainfall a light harrowing, or covering with a plank drag, is usually sufficient to cover the seed, although if that is followed by a rolling it will be better.

Acre Yield Often 8 Tons

When Rhodes grass is grown on thin, sandy, or clay soil, with only a moderate amount of rainfall, or with insufficient irrigation, the yield may be 1 to 2 tons an acre, while on the soils best suited for its growth and well supplied with moisture, the yields are sometimes 8 tons or more. Under favorable conditions, the crop is often grazed in a month after seeding, and frequently it will give a fair cutting for hay in two months, though the first cutting is apt to be somewhat weedy. Cutting should be made as soon as the seeds begin to ripen, and in arid regions each cutting should be followed immediately by an irrigation. From three to six cuttings usually can be made during the year, above five weeks being sufficient for the growth of a hay crop when all conditions are favorable. As the grass is very leafy and the stems are tender, the hay is easily cured.

Nearly all the Rhodes grass seed harvested in this country is gathered from about baling presses, barn floors, and other places where the hay has been handled. Growers can add from $25 to $50 an acre from their crop by making every effort to save seed. The bulletin suggests that one of the simplest devices is to spread a tarpaulin over the wagon frame on which the seed is gathered when the hay is hauled from the field.

The per capita consumption of rice in this country for all purposes in years before the war ranged from about 6 to 8 pounds, cleaned weight; sugar ranged from about 80 to 89 pounds; potatoes about 3.4 to 4.4 bushels for all purposes, or, excluding seed, 3.4 bushels as the average for the 10 years 1905–1914.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

An Iceless Cooler for Porkers.

Put the hogs in the "cooler" during the hot days—not as punishment, but to keep the heat from reducing daily gains in pork.

Home demonstration agents of the United States Department of Agriculture and the State colleges have been demonstrating the iceless refrigerator, and these handy coolers are becoming very popular. The swine-extension man in Mississippi, who is working in cooperation with the Federal department, is planning to put into practice the same principle used in the iceless refrigerator to keep hogs cool in summer. The iceless refrigerator is made by inclosing a frame in canton flannel, burlap, or duck. A pan of water is placed on top and wicks are extended from the water over the side of the pan and down the sides of the frame. The evaporation of the moisture in the wicks keeps the refrigerator cool. In applying this principle in the hog lot a frame will be built to provide shade for the hogs and large burlap wicks will extend down the sides from containers which are placed on top and are filled with water. It is expected that the evaporation of the water will keep the hogs cool and thus enable them to make more economical gains during the summer months.

Pea-Root Rot Runs Riot.

There is an unusual outbreak of pea-root rot throughout Delaware and Maryland, according to specialists of the United States Department of Agriculture. The crop is reduced about 60 per cent by the disease, apparently due to the same organism that causes the streak disease of sweet peas and other legumes. In southern Delaware entire fields have been completely destroyed and some were plowed under without harvesting. The peas in this region are grown largely for canning. As a rule the first year's crop is not greatly damaged, but when grown for a second or third year in succession on the same ground the disease becomes more severe, so that a crop failure usually results. The vines, leaves, and pods generally show numerous lesions and streaks which occur near the soil line, while in most cases the roots, with the exception of the tap root, are entirely rotted away. The leaves first turn yellow, then dry and brown, and finally drop off, followed by the death of the plant. One extensive grower in south Delaware, whose crop has been badly affected, reports as follows: "I put out 1,324 bushels of seed peas, and should have picked around 40,000 cases, but as it looks now I will probably get only from 1,000 to 3,000 cases. I had hopes of saving 10 per cent of the crop, but it looks doubtful at this time."

Plan Hog Development Program.

Thirty-nine field workers in swine husbandry of the United States Department of Agriculture, several State directors of extension work, and others met in a conference in Washington last week with officials of the department. Plans were worked out for carrying on the extension work in developing hog production along more uniform lines than heretofore. Addresses were made by Dr. J. R. Mohler, Chief of the Bureau of Animal Industry; G. M. Rommel, Chief of the Division of Animal Husbandry; E. Z. Russell, in charge of swine investigations; Bradford Knapp, chief of extension work in the South, and C. B. Smith, chief of extension work in the North and West. The workers spent a day at the department's experimental hog farm at Beltsville, Md., where judging contests and demonstrations of butchering and vaccination for cholera were held. All phases of the hog industry were discussed during the conference. Particular attention was given to the promotion of feeder animals in the South and the finishing of pork in the corn-belt States.

Why Not Have a "Mutton Monday"?

The average housewife would be surprised to learn that in a year she buys for every person in the household only about 5 pounds of mutton or lamb, as compared with about 71 pounds of pork and 67 pounds of beef. If all American families used sheep meat one day a week in the average daily amount of other meats, that would mean more than 20 pounds of mutton and lamb annually per capita, or four times its present consumption.

More than that, the head of the family, who pays the bills, would no doubt encourage purchasing mutton and lamb in larger cuts, instead of merely a few chops at a time, if he were made to realize the greater economy and the greater encouragement to production. In that connection a shoulder of mutton or a leg of lamb, being smaller than the average beef joint, should appeal especially to small families.

States Retain Poultry Extension Men.

Proof of the success of the campaign to increase poultry as a war emergency carried on last year by the United States Department of Agriculture, is shown by the fact that many States are employing the department's emergency extension poultrymen to continue the work this year. Recently a representative of the department visited eight States—Missouri, Kansas, Nebraska, Iowa, South Dakota, Minnesota, Wisconsin, and Illinois—and found that in six of them the State colleges are planning, if finances permit, to retain the men originally placed there by the Federal department. The situation, the representative says, seems to indicate that the State officials have been convinced of the strength and value of these men to such an extent that they are making a great endeavor where funds are available to keep them. This is true not only in the States mentioned, but in many other States where the Federal department is now conducting cooperative extension work. In practically every State the directors seem to feel that the results are such, and the demands for the work so urgent, that they dare not drop it unless compelled to do so on account of financial conditions. In some States that heretofore have never carried on poultry extension work to any great extent, they have been led to see the importance of it, and will continue such activities either with the Federal department or with their own funds in the future.

Lice Increase Cost of Making Pork.

Lice add a cent a pound to the cost of producing pork. This has been found in tests just completed at the experiment farm of the United States Department of Agriculture at Beltsville, Md. Twenty-four lousy hogs were secured and divided into two lots as nearly equal as to quality of animals as possible. The two lots were managed and fed the same way with the exception that one lot was treated to prevent lice. The animals were weighed at regular intervals and at the end of the fattening period it was

found that the hogs infested with lice cost a cent a pound more to fatten than those which were free of the troublesome pest. The officials of the department who had charge of this experiment give an interesting side light in connection with securing the lousy animals. They communicated with some of the department's field men, asking them to locate lousy hogs. It was some time before a reply was received to this surprising order. After the lousy hogs were purchased the owner learned why, and he immediately built a dipping vat and began to treat the animals to prevent lice.

Reports on Game Birds and Animals.

To gather up-to-date and reliable information on the present condition of game birds and animals in the Western States, as compared with previous years, the United States Department of Agriculture, through its Bureau of Biological Survey, has sent blanks to thousands of hunters, and has asked that they be filled out with as complete and definite information as possible. Recently 1,000 of these blanks were sent to a selected list of hunters in all counties of Washington State. The information which will be obtained from the replies, together with that supplied by the field representatives of the bureau, will give reliable information on the game-bird and animal population of that State. The bureau has already issued reports regarding mammals and birds, including the game species, of Wyoming, New Mexico, and Colorado. Information for reports is now being collected for the States of Montana, Arizona, Wisconsin, and Washington.

Heat Causes Losses to Shipped Hogs.

Last May 651 hogs, weighing approximately 157,000 pounds, were unloaded dead or died in the stockyards at the South St. Paul market, according to records kept by a representative of the Bureau of Markets, United States Department of Agriculture. Of this number, 359 hogs, weighing approximately 102,000 pounds, died in transit or in yards during the last six days of the month. This was the week of the first real warm weather, and as is usually the case during the first hot spell in the summer season, the loss of hogs in transit was extremely heavy. The difference in price between dead or live hogs during this week was approximately 18 cents a pound, which would mean a total loss to shippers of about $18,360. This loss, says the Bureau of Markets, might have been largely avoided if the shippers had taken proper care in loading, seeing that all cars were properly cleaned before loading, and that cars were not loaded as heavily as is the custom in cooler weather. If these hogs had been loaded in clean cars the losses could have been further decreased by having them sprayed often in transit by the carrier, especially upon arrival at transfer points, and also upon delivery to the terminal. One of the largest buyers of hogs at the South St. Paul market, who reships to other markets for slaughter, states that the losses of his firm during the last week in May were no heavier than usual, but that they were extremely careful to have their cars thoroughly cleaned and sanded before loading, in addition to loading lighter than usual and taking the adequate precaution of requesting the railroad officials to issue instructions to have the hogs sprayed as often as possible in transit.

T. B. Testers to Have Certificates.

To meet the need for qualified veterinarians to apply the tuberculin test to cattle intended for interstate shipment and issue certificates to cover movements of such animals after July 1, in accordance with the rules and regulations of the Secretary of Agriculture, the United States Department of Agriculture has sent 10,000 certificate blanks to State live-stock officials, who will distribute them among veterinarians to be filled out and returned to the department. Veterinarians who will be authorized to apply this test for tuberculosis must conduct it strictly in accordance with the rules and regulations prescribed by the Bureau of Animal Industry of the department. The certificates authorizing veterinarians to apply the test will carry the signatures of the veterinarian, the State veterinarian, and the chief of the Bureau of Animal Industry. Under no circumstances is the certificate to be used for advertising purposes, and any reference to it in connection with advertising is prohibited.

How Southern Club Girls Helped Win.

In the 15 Southern States there were last year 9,026 girls' clubs organized by the home demonstration agents. These clubs had a total membership of 286,278. Of these members 77,264 cultivated one-tenth acre plots; others had one-twentieth acre, and still others were in bread and poultry clubs. Many of the club girls had to fill the place of some man of the family called to the Army, and they faithfully attended to the work of planting, cultivating, and harvesting crops, besides trying to keep up their own garden plot and to can the crop raised there. One of these girls is Violet Willoughby who, with her widowed mother, ran a farm last year in Pitt County, N. C. She reported to the agent at the end of the year that she filled only 775 cans with the products of her garden because the tobacco crop needed so much of her attention. "I believe," she said, "I could have canned twice as much if I had had the time, but I had to do all my canning at night. I was often up very late even doing that amount because the tobacco required the daylight hours."

Nematodes Feed on Cantaloupes.

In the Imperial Valley of southern California there are between 14,800 and 16,000 acres of cantaloupes which, during the current year, will suffer a crop loss of at least 5 per cent through root knot. General alarm exists throughout the entire valley among the ranchers and shippers concerning the depredations of the nematodes responsible for root knot. One 30-acre field has suffered a loss of from 30 to 35 per cent, the current crop being the first on that field. Another 15-acre field, which has been in alfalfa for eight years and is now planted to cantaloupes, will have a loss of at least 40 per cent. The root knot is playing no favorites, as it is developing on old land, new land which has been in alfalfa from three to eight years, as well as on old sod land.

The symptoms of root knot are sudden wilting of the vines before picking, in some cases, and a sudden wilting soon after the first picking in others. The cantaloupe industry is growing, as approximately 5,300 cars will be marketed this year, an increase of almost 1,000 cars over the output of 1918. Consequently the growers are extremely anxious to control all cantaloupe diseases which threaten their incomes.

A form of blight in the second setting of cantaloupes has also developed in the Imperial Valley. This blight consists of the yellowing, browning, spotting, and withering of the melon soon after setting, when the fruit is about two inches in diameter. The trouble is general and universally reduces the yield, while experts believe that it might possibly affect matured fruit of the crown setting. Laboratory investigations are being conducted by the United States Department of Agriculture with the hope of isolating and controlling organisms which cause the disease.

Plenty of Profit from Good Fowls.

The story of Reuben Lowe, of North Shapleigh, Me., illustrates the possible profits from poultry keeping where careful management is practiced. During 1918 this poultryman, who devotes only part of his time to chicken raising, kept

250 birds, which paid him a profit over feed cost of more than $1,000, equivalent to $4 a bird. Included in this amount are the sales of a few eggs for hatching, about 30 cockerels sold for breeding purposes at $3.50 to $5 each, as well as the market eggs, which were disposed of in large quantity. Mr. Lowe keeps White Wyandottes of a strain that wins in the show ring when judged according to either the Standard of Perfection or a utility standard.

One pen of 20 pullets owned by this Maine poultry raiser produced eggs as follows: November, 1918, 413; December, 1918, 418; January, 1919, 380; February, 1919, 326; March, 1919, 456; a total of 1,993 eggs, averaging 99.65 eggs per bird in five months.

It pays to keep poultry of this kind, and growers everywhere are coming to realize that there is more money in keeping better fowl and feeding them properly balanced rations than in wasting time with inferior birds.

Iowa Garden Clubs Increase.

Garden club leaders in Iowa have found since the war ended that interest in gardens has increased rather than deminished. There are more garden club members in the State this year than last. The city of Des Moines alone has 1,000 more members this year than a year ago. That additional interest is being taken in gardening throughout the State is shown by the fact that 90 per cent of the garden-club leaders are being paid this year, as against 50 per cent who were paid last year.

FARMING METHODS ADVANCE TWENTY YEARS DURING WAR

(Continued from page 1.)

hour in the wheat fields all over this country are due to the improved methods employed by farmers.

"There is large and sufficient evidence to show that agriculture has made a rapid, sure, and substantial advance. If that is true, then agriculture will not readily revert.

Farmers Employ Better Business Methods

"At no time has the farmer been called upon to give greater attention to the business side of his operations. In this day of high-priced land, labor, seed, fertilizers, machinery, and other materials and equipment, careful attention must be given to economical production. Industrial plants have found it necessary to introduce the cost-accounting system in order that the cost of each part manufactured may be determined. In the same way, farmers must conduct their business and know more definitely the desirable and profitable lines of production.

"Not every farmer has it within his power to increase his acreage, but he can very materially increase his income by judiciously increasing the size of his business. There is one way of doing this that seems to be open to farmers in practically all parts of the country. The farm-management studies conducted by the Department of Agriculture bring out the fact that the simplest and surest way for the land-locked farmer to make more money is to produce more and better live stock. There is but limited opportunity for expansion in the production of the intensively grown crops, but there is great opportunity for expansion in the production of all classes of live stock.

Live Stock Increases Farm Income

"In the case of 42 farms surveyed in Henry County, Ind., 11 made an average labor income of $1,423 a year. These farms kept the most live stock, averaging 62 animal units (that is, 62 full-grown cattle or their equivalent in smaller animals). Sixteen farms made an average labor income of $479. These farms kept live stock averaging 19 animal units per farm. Fifteen farms made an average labor income of but $18. Not one of these farms kept more than 15 animal units.

"Dividing these farms into three groups according to the number of animals to an acre, the same tendency is shown. The more heavily stocked the farm, the larger the labor income.

"I have in mind a corn-belt farm, formerly managed as a straight-grain farm, that for the past five years has been operated as a hog farm. The system followed is rather unusual, in that but one litter is raised each year, the sows bred being gilts, which are fattened and sold after their pigs have been weaned. The pigs, put on full feed on self feeders, are sold when from six to seven months old. Enough hogs are bought to hog down the corn crop. The profits realized are far in advance of those realized under the old system. For the past three years, respectively, the net returns from the hog enterprise alone have been $1,259, $1,859, and $3,733.

Keep High-Class Stock Only

"It should be borne in mind in this connection, however, that, just as a large acreage may be a handicap rather than an advantage unless used to advantage, so live stock may be a liability rather than an asset unless the quality of the animals is high. The more scrub cows a man has the worse off he is if he persists in trying to produce milk from them, and in some cases the quickest way to increase net returns is to sell a bunch of canners. The high-class hog and the high-class cow, each in its own field, has no equal in efficiency in turning raw products into human food, but until we realize the wide difference in efficiency between the scrub cow producing 2,000 pounds of milk and the animal yielding 7,000 pounds of milk, or between the razorback hog and the hog that converts corn into pork rapidly and economically, we are not in a position to make the most of this fact.

"So the farmer who seeks to increase his business by going into live stock enterprises will make a grave mistake unless he pays strict attention to the vital question of quality of stock. It is not necessary to begin with expensive registered animals, for good grade stock will serve, but it is essential that great care be exercised in selecting the individual animals that are to serve as the foundation of the herd or flock. When such care is taken, however, there is no safer way for the farmer to increase the size of his business than by intensive production of live stock."

CALCULATION OF RATIONS FOR STOCK

The calculation of rations with the aid of feeding standards and tables will prove both interesting and profitable, for it will throw much light on the proper combinations of food for different purposes. At the same time it promotes a spirit of inquiry and close observation on the part of the farmer, which is one of the first requisites of a successful feeder.

GIVE HENS MASH FEED

It is the practice of a large percentage of the most successful poultrymen to feed a part of the daily grain ration ground. Most of them feed the ground grain moistened with either milk or water, although some feed it dry. A fowl's gizzard is capable of grinding all kinds of grain, but it is generally considered to be more economical to have a part of the grinding done by steam or water power. The soft-feed idea, however, must not be overworked. A beginner often reasons that it is cheaper for the miller than for the fowl to grind the grain; but the powerful muscles of the gizzard are there to be used, and experience has shown that the balance of power of functions in the fowl's economy makes the vigorous exercise of the gizzard beneficial. When feeding moistened ground feed have it a comparatively dry, crumbly mash, and not a thin slop. Give what they will eat readily in 15 or 20 minutes.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JULY 9, 1919 No. 49

U. S. Should Supervise Meat Industry, Department States in Beef Crisis

Commanding Need for Governmental Work Shown by Conditions That Follow War

Meat Conservation Now Should Cease—Retailers Keep Prices High While Many Producers Lose Money

With meat prices to the consumer so high that he is denying himself, and with the prices for live stock, especially beef and lambs, so low to the producer that he is actually losing money, the Nation is confronted with a grave problem which requires solution if we are not to suffer a decline in the live-stock industry.

It is an anomalous situation. The department has endeavored to inform itself on the subject, and after conference with Senators and Members of the House who represent live-stock producing regions and who also feel deep concern for the welfare of consumers, deems it important to give to the public certain outstanding facts, which may be summarized as follows:

There is no longer need for meat conservation. The supply is plentiful, and patriotic citizens may freely disregard the meat-saving placards which are still displayed at many eating places.

Europe needs our surplus pork, but is filling its beef requirements by importations from South America and Australia. Prices of beef cattle have fallen sharply since March 1 on account of the stoppage of exports for Army use, and a slack demand for beef at home, due to the continuation of beef conservaton under the mistaken idea that such conservation is still necessary to feed the people of Europe. Beef producers and lamb producers who sell their products at this time are confronted with the danger of heavy financial losses which would tend to restrict production and cause a serious shortage in future.

The United States will never have a satisfactory and permanent solution of the problem until the manufacture, sale, and distribution of meat products are officially supervised by authorized agents of the Government, working in cooperation with State and municipal authorities, whose only aim is to serve the public at large and not any particular class. When the Federal Government is enabled by law to maintain a just supervision over the meat-producing industry that will prevent unfair dealings, speculation and profiteering, by furnishing the public from an unimpeachable source all the facts with regard to the industry, and when the States and municipalities are enabled by law to exercise similar supervision over intrastate and local business, then only can we expect to have fair and stable markets in which producer and consumer alike will have a square deal.

Beef-Industry Crisis

Some of the particulars of the situation are as follows:

For a decade before the outbreak of war in Europe farmers and ranchmen had been urged to increase beef cattle production because the industry was not keeping pace with the growth of population. The lowest ebb in production was reached in the fiscal year ended June 30, 1914, when we practically ceased to have fresh dressed beef for export, but began to import it from the Southern Hemisphere. The campaign for increased production began to bear fruit with the outbreak of the war and beef again gained volume in our exports. Prices rose and farmers were encouraged to expand their beef-making operations. With the entrance of the United States into the war a vigorous and successful effort was made to increase the supply of meat for our Army, especially beef, by civilian self-denial. Hotels and restaurants, at the request of the Government, reduced the size of their beef

(*Continued on page 2.*)

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CATTLE OWNERS LINING UP TO DRIVE OUT ANIMAL T. B.

Powerful Sentiment Developing Against Malady's Existence

Hundreds of Letters Indorse Campaign in Which Department is Working with State Live-Stock Officials

That a powerful sentiment is developing among farmers, dairymen, and cattle breeders in every section of the country for the early and complete eradication of animal tuberculosis is shown by hundreds of letters received by the United States Department of Agriculture. These letters, with few exceptions, give unreserved indorsement of live-stock owners to the plan of fighting tuberculosis in which the Bureau of Animal Industry is cooperating with State live-stock authorities.

The Department of Agriculture intends to publish a number of these letters with the names of the writers, because it believes the experiences they tell and the views they express should be convincing to live-stock owners who have not joined actively in the fight against this disease.

Many of the writers already are listed in the Department of Agriculture's directory of herds officially accredited as free from tuberculosis.

Tuberculin Test Most Effective

The following letter to the department is from Bryant Smith, manager of the Iowana Farms, Davenport, Iowa:

"Iowana Farms desires to commend and express our satisfaction with the work of the Federal cooperating with the State authorities in the eradication of tuberculosis. The very extended experience of the Federal inspectors enables them to detect and eliminate the doubtful and suspicious cases, the animals which become sources of infection when left in the herd.

"We urge every owner of cattle, of dairy or beef breeds, to have his cattle tested for tuberculosis, under the supervision of the Federal inspectors working with the State authorities.

"We urge all owners of cattle to use their influence to secure, through proper legislation, reasonable compensation by

the State for losses sustained in the eradication of tuberculosis.

"We urge every breeder to cooperate with the Federal and State authorities in their campaign to eradicate tuberculosis, and we believe the most effective and surest method is the use of the tuberculin test, as advocated and practiced by the Federal and State bureaus."

Has Heard No Criticism

Here is another letter of the same character from F. Darcey, secretary of the Intercounty Holstein Breeder's Association, Watertown, Wis.:

"It gives me great pleasure to be able to indorse a movement which I believe is going to be a life saver for the breeder who is playing the game on top of the table. The accredited herd plan makes the pure-bred game a safer, better and more encouraging proposition.

"I have my herd on the list. This fact relieves me of that constant dread of infection which haunts a man who does not know where he is with reference to tuberculosis. I know that if I should be unlucky enough to pick up a germ, it will be detected in its incubating stage and in consequence forestall heavy losses which many unfortunate breeders have experienced.

"A true test of its merit may be realized when I tell you that I have yet to hear a word of destructive criticism. I have talked to many breeders on the subject. The test to become general among cattle men has only to be explained to them. All our boys in this vicinity want to get on the list.

"I am certain the fact that my herd is on the list enhances its value. The inspectors with whom I have come in contact are gentlemen well versed in their work and attentive to duty."

"Only Way to Eradicate T. B."

Extracts from other letters follow:

"I can not speak too highly of this work. My entire herd of 80 head has been tested the second time, and I find everything all right. I have had considerable trouble during the past five or six years, but now begin to feel that I have entire control of the situation. I am doing all I can to encourage other breeders to put their herds under the Governments' supervision as I think it is the only way to eradicate tubercular trouble."—H. A. Moses, president Strathmore Paper Co., Mittineague, Mass.

"Government testing for tuberculosis * * * is one of the best helps that could possibly be offered to dairymen. It is just as good as fire insurance and just as much needed."—E. W. Files, Maplecroft Farm, Portland, Me.

"The work of the department in eradicating the disease of tuberculosis is being met with great approval by the stockmen in this district. The percentage of cattle affected with the disease is gradually getting smaller year by year."—W. L. Burdick, Williston, N. Dak.

"Looking at the proposition from the standpoint of the pure-bred dealer we are frank to confess that we would not be without the protection offered by the de-

(*Continued on page 8.*)

MEAT INDUSTRY SHOULD BE UNDER SUPERVISION

(*Continued from page 1.*)

portions and regularly left beef off their menus. Private families by thousands did likewise. Farmers and ranchmen exerted themselves to the utmost at great risk in order that our soldiers and sailors could have the best food that skill and loving care could produce. The result is history. From an export of beef and beef products of 151,000,000 pounds in 1914, we exported 590,000,000 pounds of beef and beef products in 1918—almost equaling the great surplus of 1901, when our population was 35,000,000 people less than now. The exports of 1918 were trebled the three-year prewar average.

The war is over. In a little while the presence of American soldiers in Europe will be a memory of noble sacrifices. We must not forget that the principal use for the beef which we shipped overseas in such quantity was for the men in uniform. Europe, short of food though it is, does not need beef from the United States so much as it needs our pork. The stocks of cattle in the most of Europe have not suffered seriously in numbers during the war. Indeed, outside the areas actually overrun by the contending armies, cattle stocks have fairly held their own and in some cases even increased. Stocks of hogs and sheep have suffered much more severely than have cattle. It is also well known that Europe turned to South America and Australia for beef and lamb as soon as shipping conditions permitted. England and Italy are now buying in those markets. The United States, however, is the only large pork-surplus nation, and Europe, suffering for fats, with her stocks of swine greatly reduced, can consume our pork surplus readily. The beef and lamb now awaiting market on our farms and ranges must, therefore, find its outlet not overseas but at home.

In 1918, for the first time in many years, the production of meat animals gained ground in the losing race with growth of population. This was made possible by the earnest and patriotic efforts of our live-stock producers, and unless beef and lamb consumption is now increased to its potential maximum, without needless waste, we are in danger of throwing away the advance we have made under war pressure.

Prices Compared

It is important to present the facts concerning the prices for live stock and the prices for meat wholesale and retail. The following comparison exhibits the decline in the prices of cattle on foot:

Prices of Medium and Good Beef Steers on Foot at Chicago

[Cents per pound.]

Mar. 1, 1919	13.50—18.50
July 1, 1919	12.00—14.60
Decline	1.50— 3.90
Mean per cent decline	14

Prices on Choice and Prime Beef Steers on Foot at Chicago

Mar. 1, 1919	18.50—20.25
July 1, 1919	14.35—15.50
Decline	4.15— 4.75
Mean per cent decline	23

The alleged reason for this situation is the stoppage of export for Army use abroad and the failure of civilian beef consumption to resume its normal status. The hotel and high-class family trade are not consuming the quantities of choice beef which they used before the war, and the families of moderate income are eating only cheaper cuts, the price of which must compensate in part for that of the cuts for which there is a smaller demand. The fact is evident that many persons who desire to eat more meat, especially beef and lamb, are denying themselves.

People do not realize that the necessity for conservation of foods, especially meat, no longer exists, except as a matter of reasonable economy and prevention of sinful waste. We have in prospect the greatest wheat crop in our history; we had in 1918 by far the largest production of pork we ever had, as well as a great increase in our beef, lamb, and dairy production. Yet one sees everywhere in hotels, restaurants, and dining cars the "Save Food" signs, which were such a vital influence in the successful prosecution of the food compaign and incidentally, the winning of the war. These "Save Food" signs should now be disregarded. Consumers are unconsciously working harm to themselves and to livestock producers by now restricting their consumption of meat.

This situation is a real menace to the farmer and to the consuming public as well. Many cattle raised in response to the demand for meat production for the Army are now maturing, and if marketed on a falling market will cause heavy loss to the producers, with the result that declining production may be expected in the future. Stockmen do not deserve to be penalized for their patriotism, but should be supported by the consuming public in an effort to restore consumption to the normal without delay.

Retail Prices Not Justified.

The department is aware that much of the reason for the hesitation of the aver-

(*Continued on page 5.*)

Hazards in Handling Hogs in Summer; Care Will Reduce Losses in Transit

Hot weather occupies a leading position in the hog's calendar of horrors. During the season when the sun it as its best, porkers suffer unless protective precautions in the way of plenty of shade and a sanitary wallow are provided. Particularly in the case of shipping hogs by rail is mortality heavy during the season when the mercury is skyrocketing.

Where it is necessary to ship fat hogs to market at this time of year, such precautions as icing the cars, shipping at night as far as possible on special stock trains, and exerting every effort to expedite the movement of the live stock to the central market so that the animals suffer only a minimum of shrinkage in weight and discomfort during their railroad journey, should be practiced.

Cool Showers on Cars

According to the United States Department of Agriculture, it is advisable to equip each car which is within about one day's trip of its destination with approximately 500 pounds of ice suspended at even intervals in burlap sacks by means of stout rope from the ceiling of the car. The motion of the car will cause these sacks to swing to and fro so that the hogs are continuously showered with cold water during their market trip, until the supply of ice is exhausted. In case it is impossible to secure an abundance of ice, the stockman should bed his car with 3 or 4 inches of sand, which should be well wetted before the train starts and, if possible, it should be again moistened in transit.

The heat discomfort of hogs on the farm may be alleviated by locating the hog quarters amid plenty of shade and providing a substantial, permanent hog wallow made of concrete of a size adequate for the requirements of the herd. Arrangement should be made for draining the wallow at frequent intervals and adding fresh water to maintain it in a sanitary condition. If the wallow is constructed in an unsheltered position, a simple sunshade may be made of straw or boughs laid over a framework built about 4 feet above the wallow.

Green Feeds Are Good

One advantage of the warm weather season is that, ordinarily, it provides an abundance of green feed and pasture crops for the hogs to harvest in the self-serve way. Every hog raiser should make maximum use of all available green feeds in the summer ration, as such materials are not only nutritious and fattening during the high-temperature season, but they also are inexpensive material for the making of profitable pork. Furthermore, the porkers gain necessary exercise in rustling the green feed.

"BETTER-EGG" MEETINGS IN KANSAS

As a part of the cooperative State and Federal campaign for more and better eggs in Kansas and to save wastes between the hen and the consumer, demonstration meetings will be held in 24 towns in July and August. At these meetings demonstrations of egg candling and the proper packing of eggs will be given by a representative of the food research laboratory, Bureau of Chemistry, United States Department of Agriculture, working in cooperation with the State agricultural college and the poultry and egg industry of Kansas. Poultry raisers and all others interested in the subject are invited to attend.

IMPORTANCE OF A VARIED RATION

In feeding grain to chickens the aim of the feeder should be to give a variety. No one kind of grain alone is best. Variety may be secured by mixing the grains or by feeding the different kinds of grain on different days. This variety is in accordance with nature. When on free range the fowls obtain a little of several different kinds of feed. Grain should not be made the sole feed, for then fat and not eggs is the usual result.

DEMAND FOR SUMAC INCREASES

Sumac, which grows abundantly in certain sections of the United States, may be gathered and sold profitably to tanners and dye manufacturers, say the specialists of the Bureau of Chemistry, United States Department of Agriculture. The price of sumac has increased in recent years because of the decrease in importations of this plant from Sicily. The American sumac, if properly gathered and cured, is equal to the imported article.

In certain sections of Pennsylvania, Maryland, Virginia, and West Virginia good wages can be made, the department says, by gathering and selling sumac during July, August, and September. Arrangements for the sale of the sumac should be made before it is gathered.

NATIONAL BUTTERMILK DAY TO POPULARIZE GOOD DRINK

Observed Throughout Country at Suggestion of Department of Agriculture

More General Consumption Will Benefit Dairy Industry by Furnishing Market for What Has Been Waste Product

July 1 was National Buttermilk Day.

Buttermilk, the United States Department of Agriculture thinks, is one of the best drinks in the world—nutritious, palatable, and full of zest and vim. The man who drinks buttermilk regularly and copiously is doing a good turn for himself. That was one of the purposes of proclaiming National Buttermilk Day. The other was that the dairy industry in the United States will be encouraged.

Buttermilk Day, it was hoped, would remind many people of this drink, introduce it to others, and be the beginning of a greater consumption of buttermilk that will contribute to the health and happiness of the consumers and at the same time help dairy farmers to develop production.

To insure an ample supply of buttermilk, both for homes and for hotels and restaurants on July 1, the Department of Agriculture requested creameries, milk plants, and other dairy establishments to cooperate in the plan to popularize the drink.

Many Delicious Combinations

It was pointed out that while straight buttermilk is an excellent drink, there are a number of delicious combinations. Buttermilk lemonade is obtained by adding the juice of two or three lemons to a quart of buttermilk, with sugar to taste. Buttermilk may be combined with lemon juice, orange juice, or eggs and sugar for making frozen dainties.

Aside from its food and beverage qualities, buttermilk is said to possess medical qualities. Many physicians prescribe it in the treatment of certain intestinal disorders. The bacteria that brings about the chemical change by which buttermilk is produced is believed by many physicians and bacteriologists to destroy certain other organisms that, in the human body, tend to hasten senility. Many prominent men drink buttermilk regularly as a tonic. One of the most widely known lecturers and writers in the United States drinks buttermilk as regularly as he brushes his teeth—and declares that he feels himself getting younger with every glassful.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

CLEAN CITRUS CULTURE WINS AUSTRALIAN MARKET

The Governor General of Australia recently issued a proclamation prohibiting the importation of citrus fruits or citrus plants from all parts of the world in which the disease known as citrus canker, or Japanese canker, exists. A special proviso of this edict permits "citrus fruits to be imported from the States of California and Arizona in the United States of America, subject to the condition that each consignment is accompanied by an official Government certificate, dated and signed by a responsible officer of a Government department of the country of origin, giving the name of the State in which it was grown, identifying the fruit, stating the quantity, and certifying (*a*) that the fruit was grown in the State specified, (*b*) that citrus canker does not exist in said State, and (*c*) that the consignment is free from citrus canker and from all other diseases."

This action on the part of the Australian Government should react beneficially to the citrus growers of California and Arizona who have surplus stocks to export. This opportunity comes only as a result of these growers maintaining their orchards in a healthy and vigorous condition.

SOY BEANS AND COWPEAS GOOD FEED FOR LAMBS

Ravages of the stomach worm now become apparent in much of the eastern section of the United States. To minimize them, it is well to wean the lambs rather early, and turn them on fresh pastures. This is advice from specialists of the United States Department of Agriculture.

Grain fed to weaned lambs, up to one-half pound a day, has proved profitable. Soy beans and cowpeas have been found the best catch crops for the purpose of providing fresh pasturage. Of the two, soy beans seem to make the best and most rapid growth. Six weeks in most cases is sufficient time to secure a good growth of this crop.

By utilizing these crops fresh pastures for lambs are easily available for this most crucial period of the life of a sheep.

DO HOGS LIKE TO SWIM OR LIE IN COOL SHADE?

All hog raisers know the value of water for their animals during hot weather—fresh, clean water for them to drink and a pool or wallow for them to get in when they are too hot. A good "swimmin' hole" reduces the feed bills and many hog raisers find it pays to have a concrete water basin in their hog lot.

There is one on the experiment farm of the United States Department of Agriculture at Beltsville, Md. It is provided with a covered frame which furnishes shade. It was noticed that during the heat of the day the hogs did not get in the water but preferred to lie around the edge of the pool in the shade. This year another pool has been built in an adjacent hog lot, but the shade will be provided several yards away. Hogs are to be kept in both lots and it will be noted whether they prefer to get in the water or to lie in the shade during the heated part of the day. Weights will be kept of the animals in the different lots to see which makes the most economical gains.

CHRYSANTHEMUM GALL FLY WORKS WHILE YOU SLEEP

After completing the study of the habits and seasonal history of the chrysanthemum gall fly or midge, the entomologists of the United States Department of Agriculture say that growers either must use nicotine sulphate as a spray or do some night work if they expect to prevent the damage done in florists' greenhouses by this pest.

The gall fly was not a pest in greenhouses in the United States until two or three years ago, but now it has been reported by a number of "mum" growers scattered over a wide area in this country. It causes unsightly galls on the leaves of chrysanthemums and curls or crumples them, thus reducing the vigor of the plant. This in turn affects the size, color, and beauty of the bloom. Consequently the "mum" grower receives less for his flowers on the market.

Two ways have been found to eliminate the gall fly—burning tobacco paper in the greenhouses and spraying the plants with nicotine sulphate.

The entomologists have found that fully 95 per cent of the gall flies emerge from the galls as adults after midnight. Consequently where tobacco stems are burned as a means of control, the work must be done after midnight, since the fumes are effective for only a few hours, due to leakage. Most greenhouse men have been in the habit of fumigating about 6 o'clock in the evening. This practice is not effective against the chrysanthemum gall fly unless the house is absolutely tight. However, where nicotine sulphate is sprayed on the plants, the work may be done in the late afternoon or early evening. This application should be repeated every second or third day for a period of a month or more.

POINTS FOR BEGINNERS IN POULTRY RAISING

The safest way for those who are about to make their first attempt at poultry raising is to start in a small way with a few fowls, and learn the business thoroughly before making large investments. Mistakes will be made and many difficult problems will be presented for solution before success in any large measure will be attained. As soon as it is found to be a paying investment, more capital may be put into the plant.

Another good plan for the beginner who wishes to learn the art of poultry keeping is to secure a position with some successful poultryman. One or two years of work on a large, practical plant will be found a great help, as the methods of caring for the birds and of marketing the products can thus be learned better than in almost any other way.

The question is often asked as to what is the best time of the year for one to begin. When to begin is not very important, but the fall of the year is a good time, for then stock can be purchased for less money than at any other season. It is also advisable that the fowls be moved to their new quarters before they begin to lay.

If the beginner has had experience in poultry keeping, it will be all right to purchase eggs, otherwise he should begin with the fowls and thus gain some knowledge of caring for poultry before attempting to raise chickens.

Don't wait to get that large sum for investment. Put all the little bits in Thrift Stamps and War Savings Stamps and you will soon have a large sum invested.

MEAT INDUSTRY SHOULD BE UNDER SUPERVISION

(*Continued from page 2.*)

age housewife to increase the amount of beef in the family diet is the excessive retail prices which now prevail. These prices are not justified by the wholesale quotations.

The following comparison shows that retail prices have not declined in due ratio to wholesale prices. It shows also that the prices on hides have advanced very sharply, and this is a fair indication of the profits made by the packing industry on by-products:

Wholesale Prices of Medium and Good Dressed Beef Carcasses at Various Cities.

[Cents per pound.]

1919	Boston.	New York.	Philadelphia.	Washington.	Pittsburgh.	Chicago.
Mar. 1	23.00–25.00	22.00–24.50	23.00–25.00	22.00–26.00	22.00–25.00	23.00–26.00
July 1	16.00–18.00	15.00–19.00	19.00–22.00	18.00–19.00	16.00–22.00	16.00–19.00
Mean decline	7.00	7.00– 5.50	4.00– 3.50	4.00– 7.00	6.00– 3.00	7.00
Mean decline.....per cent	29	29	15	23	24	28

Retail Prices of Beef Cuts (Good and Medium Grades) at Various Cities.

[Cents per pound.]

	Boston.	New York.	Philadelphia.	Washington.	Pittsburgh.	Chicago.	St. Louis.	St. Paul.
Sirloin steak:								
Mar. 1	65—75	43—50	50—55	45—55	.....	—45	40	35—40
July 1	60—65	40—45	38—50	40—48	.....	35—40	35	40—45
Decline	5—10	3— 5	12— 5	5— 7	.....	5— 5	5	+5— 5
Mean per cent—								
Increase	.....	.....	.....	.....	.....	.....	.....	7
Decline	9	10	16	12	.....	11	12	.....
Porterhouse:								
Mar. 1	70—80	43—70	55—60	45—60	55—65	55—75	50	40—50
July 1	65—70	45—50	50—55	40—50	50	40—58	40	50—60
Decline	5—10	2—20	5— 5	5—10	5	15—17	10	+10—10
Mean per cent—								
Increase	.....	.....	.....	.....	.....	.....	.....	11
Decline	10	7	11	13	10	24	20	.....
Round steak:								
Mar. 1	60—65	43—55	45—50	40—45	45—50	35—40	40	25—35
July 1	50—60	42—45	48—50	40—55	40	28—35	35	35—40
Decline	10— 5	1—10	3	10	5	7— 5	5	10— 5
Mean per cent—								
Increase	.....	.....	3	20	10	.....	.....	25
Decline	12	0 to 20	.....	.....	.....	8	12	.....
Rib roast:								
Mar. 1	40—50	38—60	45—50	40—50	40 —45	38—50	35	30—40
July 1	35—45	35—40	45	28—38	37½	28—38	30	25—35
Decline	5— 5	3—20	.....	12—12	2½	10—12	5	5— 5
Mean per cent—								
Increase	.....	.....	.....	.....	.....	.....	.....	.....
Decline	11	20	.....	12	5	25	15	15
Chuck roast:								
Mar. 1	30—35	31—37	28—35	28—35	25—30	28—30	25	25—32
July 1	25—28	30	25—35	25—32	—30	18—22	20	25—32
Decline	5— 7	1	3	3— 3	.....	10— 8	5	.....
Mean per cent—								
Increase	.....	.....	.....	.....	.....	.....	.....	.....
Decline	18	.....	10 to 0	10	.....	25	20	.....

These retail prices reflect average quotations. In Washington City at this time, and presumably in other cities of the country, prices at some shops which cater to the more fastidious trade are substantially higher.

Prices of Packer and Country Hides, Chicago Basis.

	Mar. 1, 1919.	June 21, 1919.	Mean per cent advance.
Packer hides:			
Native steers	27.00	40.00–42.00	50
Native cows	23.00–26.00	40.00–42.00	60
Heavy cows' buffs	18.50–22.00	30.00–42.00	80
Country hides	21.00–22.00	32.00–35.00	57

Prices of Packer and Country Hides, New York Basis.

Packer hides:			
Heavy native steers	28.00–28.50	40.00	43
Native cows, all weights	22.50–26.50	40.00–43.00	60
Native cows and buffs	20.00–21.00	32.00–42.50	71
Country hides	22.00–23.00	34.00–38.00	60

The daily market reports of the Bureau of Markets show that prices of good and choice beef cattle on foot at Chicago have declined about $4 per hundredweight, or nearly 25 per cent since March 1, while lower grade beef cattle have declined as much as 15 per cent. During the same period wholesale dressed beef prices show on the average approximately a corresponding percentage of decrease, which varies, however, in different cities from about 15 per cent to 30 per cent. Hides, however, have advanced decidely while the cattle market has been breaking rapidly. The packer hide market at Chicago has gone from about 27 cents to 42 cents per pound, an increase of about 50 per cent. It is estimated that this offsets about 70 cents per hundredweight in the wholesale cost of beef and that increased prices of stearin, tallow, and other by-products added to the increased prices of hides brings the total saving on beef costs up to about a cent a pound since March 1.

While the live cattle and wholesale dressed beef markets have gone down to the extent of 25 per cent the price of retail beef cuts to the consumer has been at a standstill in many cities, has even increased as much as 20 per cent on some cuts in some cities, and where retail prices have been reduced, the reductions usually are only from 5 to 7 cents per pound, which means only about 10 per cent reduction from prices prevailing March 1.

Legislation Required

The department has not the time in this emergency to do more than to present these outstanding facts, but thus presented the facts demonstrate clearly the commanding need for governmental supervision over the manufacture, sale, and distribution of meat products. Federal supervision of the interstate industry may well be accompanied by State and municipal legislation providing supervision over the intrastate and local industry, to the end that Federal, State and municipal supervision may be correlated for the prevention of unfair dealings, speculation and profiteering by furnishing to the public from unimpeachable sources all the facts with regard to the industry from the farm to the table, in order that both producer and consumer may have a square deal.

In addition to presenting these facts in this manner to the American people, the department is communicating a summary of the situation to Mr. Herbert Hoover, who is in charge of the American Relief Administration in Europe, and inviting his advice and suggestion as to measures of immediate relief which may be put into effect here and abroad.

CLARENCE OUSLEY,
Acting Secretary.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

South to the Front in Road Building.

Recent reports received by the United States Department of Agriculture on Federal aid road projects show the South moving forward in the road-building campaign, with projects showing higher grade construction. Of the 16 Georgia projects approved for April, two were for bridges, 7 for concrete and 1 for either a brick, concrete, or bituminous road, the others being for sand-clay roads. The concrete roads will cost from $30,000 to $32,000 a mile, indicating the highest type construction, for the cost in the South is usually less than that in the North. Louisiana will build a short bituminous macadam road at an estimated cost of $36,377 a mile. Virginia has one bituminous macadam and three concrete roads in 9 projects approved.

Michigan Increases Milk Consumption.

To increase the use of dairy products—especially whole milk, skim milk, and buttermilk—is a project that is being conducted in Michigan under the direction of the Extension Division of the Michigan Agricultural College and the United States Department of Agriculture. In previous years large quantities of surplus skim milk had been poured into the sewers during the "flush" season in the spring and summer because there was no market for it. Every effort is now being made to utilize all of this valuable food.

At Flint, Mich., through the efforts of the home demonstration agent, the schools have been used as the center for the distribution of whole milk. The children are examined by the school-teacher and nurse, and to the parents of those found undernourished a note is sent by the home demonstration agent requesting that they be allowed to bring 3 cents each day for a glass of milk and a slice of bread, which is served every morning at 10 o'clock. The response from the parents has been encouraging. Only five of the many children who needed the luncheon were fed at public expense and a marked improvement in their condition has already been demonstrated.

At Saginaw, through the efforts of the home demonstration agent and the anti-tuberculosis nurse, distribution of milk has been established in the factories and schools. The milkmen of Saginaw recently raised a $500 fund to supplement $1,500 raised by the Federation of Women's Clubs to provide proper lunches for the undernourished children in the public schools. In addition, the home demonstration agent, by a series of demonstrations, is giving instruction in the value of milk. Other cities and small towns in the State have awakened to the need of providing growing children with plenty of whole milk. A marked improvement is shown by the children who now have milk as a part of their daily ration and thus new converts are being made among the parents relative to the importance of using more milk in the diet.

Learn Sewing in Railway Station.

Arizona women are hustlers, if those who attend the clothing schools held in that State are typical examples. These clothing schools are conducted by the home demonstration agents under the direction of the United States Department of Agriculture and the State college. The women who attend them are taught various phases of dressmaking and millinery. Such a school was recently held at Salmarita, Ariz. The waiting room at the railway station was the only available place to meet. Before it could be used, the walls and floors needed a thorough scrubbing and they were given it by the committee in charge. Three machines and 2 work tables were installed and 12 women came for instruction the first afternoon. The amount of work accomplished during the entire week by those in attendance was a surprise to the home demonstration agent and the committee in charge. One woman, in the three days she attended, made a voile dress, a gingham dress, a skirt (from old material), a hat, and a baby cap. While doing this, she also minded the baby she had brought with her. When the youngster grew restless, she ran her sewing machine with one foot and rolled the baby carriage back and forth with the other. All during her work, she sang a Dutch lullaby to the baby.

Demonstrate Grain Grading.

Demonstrations showing how grain is graded at terminal markets, from the first to the last step, are being shown by Federal grain supervisors to farmers, millers, elevator men, and others in a series of meetings now being held in several States. The officials in charge demonstrate the equipment used by inspection officers at terminal markets and the methods employed in grading grain according to the Federal standards. They demonstrate how to apply the grades with a limited and inexpensive set of equipment at the county mill and elevator. Samples of various grades of wheat, corn, and oats are carried with the demonstrations, besides type trays and charts showing the various grading factors under the standards, and the effect of mixtures of foreign material on the milling and baking quality of flour. Samples of wheat, corn, and oats are taken from cars with the probe. These samples are mixed, and methods of taking an average sample by mechanical means is demonstrated. Special equipment, which tests for moisture, dockage, and weight per bushel, is also used. The main object is to demonstrate methods by which the United States Department of Agriculture, in carrying out the provisions of the grain standards act, determines grain grades at principal markets. Prices paid for wheat and shelled corn are based upon the grades of Federal standards. Demonstrations are being held in a number of cities in Ohio, Indiana, Iowa, Nebraska, Oklahoma, and Texas. Similar demonstrations are to be given in Michigan and other States in the near future.

Beekeeping for Soldiers.

Because successful beekeeping requires more work, study, and attention than many people are willing to give it, bee specialists of the United States Department of Agriculture are devoting their efforts to developing better beekeepers of those now in the work rather than make more beekeepers. There is one outstanding exception, the specialists say, to this policy—the returned soldier who is disabled and who is not now qualified for the work in which he was engaged before entering the Army. The Government, through the Federal Board for Vocational Education, offers disabled men training in whatever line of work they decide upon for re-education. To give some of them an opportunity to see the advantages in beekeeping, the Bureau of Entomology of the Department recently invited some of the boys from the

Walter Reed Hospital in Washington to the new bee-culture laboratory in Somerset, Md. Talks were given on the life history of bees and on the requirements of successful beekeepers, and demonstrations were held in handling bees. A few of the men who had heroically gone through gas attacks and barrage fire took to the bushes when they were handed frames on which the bees were busily at work. Others bravely went into the apiary without veils and removed honey from the hives. Perhaps the most interesting part of the afternoon for the more timid men came after the honey was in a bucket. With hot biscuits and coffee served by the women of the local Red Cross unit, a large quantity of honey was consumed.

While the commercial beekeeper needs to be in fine physical condition to do his best, the bee specialists point out that it remains true that the most important part of a beekeeper is the part above his neck. There are already more beekeepers than are needed—10 times over, perhaps—but it is true that 10 times the present number of good beekeepers are needed, they add.

Sell Wool Cooperatively.

Farmers on the Belle Fourche, Minidoka, and Shoshone reclamation projects are engaging in the cooperative marketing of wool in their respective localities under the direction of the United States Department of Agriculture. The plan of concentrating the graded wool at central points, where it is readily accessible to the buyers, assures better prices and larger net profits to the producers. Flock owners are paying from 17 to 29 cents a head for machine shearing, an average of about 21 cents being common. A few years ago the cost of machine shearing was only about 10 cents a head. This increase of over 200 per cent is notable as another reason why woolen clothes cost so much.

Michigan to Plant Roadside Trees.

The Michigan Legislature recently passed a law to encourage the planting of nut-bearing and other food-producing shade trees along State trunk highways and other roads built in that State. The law makes it the duty of the State Highway Commission and the State Commission of Agriculture to look after the setting out of such trees and of the State Agricultural College and the Public Dominion Commission to distribute stock at nominal cost to local officials and private individuals who will set it out. Trees are to be planted at intervals of 20 to 40 feet along the roads. Injuring roadside trees or affixing notices of any kind to them is made a misdemeanor punishable by fine of $1 to $25 and imprisonment of not more than 30 days. This law is in keeping with the policy of encouraging tree planting anuounced by the United States Department of Agriculture, the department of the Federal Government that administers the Federal aid road law, in cooperation with the States.

$500,000 Saved by Killing Prairie Dogs.

Organized poisoning operations were extended over 1,231,297 prairie-dog-infested acres in New Mexico last year under the cooperative war measure work of the Biological Survey of the United States Department of Agriculture, the New Mexico State Council of Defense, and the extension service of the New Mexico College of Agriculture. This included the protection of 212,992 acres of crops in all parts of the State, nearly 5,000 landowners taking active part in the work. The expenditures of the Federal and State Governments and of cooperators totaled less than $60,000. The actual cost for the treatment of range land was less than 4 cents an acre. If average crop returns in New Mexico be placed as low as $20 an acre, the saving in crops alone for this one season is approximately $500,000. To this should be added the benefit from the destruction of prairie dogs on over a million acres of range and the consequent increased value in crops and forage for seasous to come. Better organization will result from the experiences of last year, and the Biological Survey and the authorities in New Mexico are in a position to push much more vigorously the work of clearing the State of prairie dogs. Economy and effectiveness have been increased through recent improvements in poisoning methods and, with the help of legislative measures and the hearty cooperation of all ranchmen, it is hoped that the prairie dog will be entirely eradicated before many years.

Little Skim Milk Thrown Away.

Apparently very little skim milk was thrown away by milk dealers last year. The United States Department of Agriculture recently sent questionnaires to dealers in Boston, Philadelphia, Detroit, and Pittsburgh, cities selected as typical. Only one dealer reported throwing away any considerable quantity of skim milk. Others report manufacturing their surplus into various products, including cheese, milk powder, condensed milk, buttermilk, and caseiu. In Boston, Philadelphia, and Pittsburgh, the largest surpluses came in May and June. The season of large surplus came earlier in Detroit, beginning in February and running through April. In the case of some individual dealers who do a considerable manufacturing business as well as a market milk business the surplus appears to have been large throughout the year. The Department of Agriculture reiterates the importance of utilizing all skim milk to the best advantage and points out that the most economical way of handling it can not be determined as a general proposition, but must be worked out by each dealer for himself.

Maryland Canning Club Does Its Bit.

Every girl in the Salisbury (Md.) Canning Club gave a glass of jelly to the Red Cross last year. This was for the soldier boys who were in the hospitals. Canning club girls learn to make jelly under the direction of the home demonstration agents sent out by the Department of Agriculture and the State colleges, and their products are of extra quality because they are made just right. Not content with this bit of patriotic service the same club then voted to adopt a war orphan. The money to support one was raised by the members selling enough of their canned products last fall to provide the necessary amount. They plan to pay for the care of the same orphan again this year.

Milk Popular for Lunches.

Drink more milk—a healthful food as well as drink—is the slogan advocated in an educational campaign now being conducted by the Dairy Division of the United States Department of Agriculture. Lectures, demonstrations, charts, and moving pictures are being used to teach the food value of milk and the work is carried to all classes and nationalities of people in all parts of the country. Recently in Bridgeport, Conn., two milk specialists in one day spoke before five meetings; two audiences were colored, one was Lithuanian, one Slavonic, and one Greek and American mixed—1,600 people in all.

In a certain town in Illinois a factory employing 1,400 men has recently introduced the plan of permitting milk venders to go through the plant at 10 and 3 o'clock each day with sweet milk and buttermilk. Most of the men buy a pint each time. The foreman stated that since the drinking of milk has become so popular with the men not only is their efficiency improved, but they are more contented and even tempered.

Specialists are giving lectures in many large department stores, and explain that a glass of cool milk is not only refreshing

on a hot day but also furnishes a definite amount of nourishment.

In New Haven, Conn., the manager of one department store had posters made entitled "Why we should drink milk," and sold six milk tickets for 25 cents to the employees, no attempt being made to show a profit on the sales. Half-pint bottles of milk were distributed to the clerks in the middle of forenoon and afternoon. Straws were furnished with each bottle of milk, as the manager believes that too often people drink milk too fast, causing bodily discomfort.

Feeding Fish Heads to Poultry.

A simple and inexpensive substitute for meat scraps which, often, are hard to obtain at the average butcher shop, is to utilize fish heads in the poultry ration. Arrangements usually can be made with local fish dealers to save these heads, particularly if the poultryman will furnish buckets in which the refuse may be kept until he calls for them. As they come from the dealer's shop, the fish heads are tough and covered with heavy scales and gristle. However, underneath is fine tender meat which the hens relish keenly. The poultryman can soften the coarse outer shell by boiling the fish head in water for 5 to 10 minutes and then pouring off the water and throwing the fish heads in among the chickens. In many instances the dealers are glad to get rid of the fish heads, and on the basis of actual food value the poultry keeper can afford to pay 4 or 5 cents for a quart of fish heads which provide a satisfactory protein-containing food for his flock.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended June 28, 1919:

The Grain Bug (Professional Paper). Department Bulletin 779.

"White Ants" as Pests in the United States and Methods of Preventing Their Damage. Farmers' Bulletin 1037.

Laying Out Fields for Tractor Plowing. Farmers' Bulletin 1045.

Control of Cherry Leaf-Spot. Farmers' Bulletin 1053.

Making and Maintaining a Lawn. Department Circular 49.

Our National Elk Herds: A Program for Conserving the Elk on National Forests About the Yellowstone National Park. Department Circular 51.

Standards of Purity for Food Products. Office of the Secretary. Circular 136.

Lumber Export and Our Forests. Office of the Secretary. Circular 140.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

CATTLE OWNERS LINING UP TO DRIVE OUT ANIMAL T. B.

(*Continued from page 2.*)

partment and we can not too strongly urge all dairymen to test out their herds."—E. G. Schmidt, Runnymede Stock Farm, Elko, Va.

Benefits of Eradication

"The benefits from being able to ship interstate, the advertisement received from being listed in the Government bulletin, these and many other advantages makes me think this is the greatest boom to the pure-bred cattle business ever started."—T. S. Humphries, Humphries Stock Farm, Durant, Miss.

"In regard to the tuberculin tests of my Rosewood herd I am thoroughly satisfied with the results obtained by having such a test made as it guarantees all my herd to prospective customers against buying infected breeding stock. I feel sure that before long it will be necessary for all breeders to follow this course if they want to remain in the breeding business."—Walter Godchaux, Rosewood Farm, Napoleonville, La.

"In May, 1918, we signed up with the Federal authorities to get on the accredited herd list. Our first test was made the 27th and 28th of the same month and found our herd somewhat infected with tuberculosis. But the Federal authorities have kept testing our herd from time to time until to-day we have 80 head of Red Polled cattle which we believe to be entirely clean. We are positive that if we had not gone into this plan, by this time our herd would have been badly infected, causing us the loss of a great many dollars. We would fully recommend the accredited herd plan to all breeders of pure-bred cattle."—J. W. Larabee, Earleville, Ill.

T. B. Soon a Memory

"We, the undersigned breeders of Guernsey cattle, have cooperated with the State and Federal Government for a number of years for the eradication of tuberculosis in our herds. We do heartily agree it has been of great value in cleaning and keeping clean our herds of tuberculosis. We believe every breeder of pure-bred cattle should cooperate with their State and Federal authorities in trying to stamp out this disease. If they will do this tuberculosis will soon be a thing of the past."—Charles E. Wirt, William Nettleton, J. H. Nahrgang, Lewiston, Minn.

"To the breeder of pedigreed cattle the inspection by governmental authority of his herd is of untold value. Not only in dollars, enabling him to remain free of tuberculosis, or if his cattle are found infected to dispose of those reacting to tuberculin, and thereby saving the lives and conserving the value of those not affected. The satisfaction of asserting that one's herd is on the accredited list becomes a moral as well as financial asset."—Benjamin W. Hunt, Eatonton, Ga.

"Cattlemen are learning that by testing the United States Department of Agriculture is not trying to put them out of business, but on the other hand is really benefiting them by eradicating this terrible disease from the entire country and making the raising and buying of cattle far safer."—R. M. Cooper, jr., Wisacky, S. C.

"There are undoubtedly some unscrupulous men in the business who will take every advantage they can, and if the States and Government will cooperate in this work and only pass cattle that have been tested by authorized men, the disease will soon be stamped out."—C. B. Gager, Paris, Ky.

Of Incalculable Value

"The value to the State in the protection of the whole cattle industry and the advantage to the individual breeder is of incalculable value. In a short time the benefits to be derived from the accredited herd plan will be so plain that all breeders of pure-bred cattle especially will be forced, in order to sell their cattle to advantage, to become members of the accredited herd system."—R. J. Goode, jr., Alabama Hereford Farm, Gastonburg, Ala.

"Confidence is the chief value of tuberculin testing. First, self-confidence that comes from knowing your herd is free from tuberculosis and the satisfaction that comes from this condition; second, the confidence the buying public puts in your herd. The public is willing to pay for this confidence. This makes my breeding work a pleasure and also profitable."—W. H. Senour, Brookville, Ind., president of the Indiana Dairy Association.

"We have been much interested in getting our neighboring breeders to have their herds tested, so that we might have a clean bill of health in this community. So far we have been instrumental in securing over 50 applications for the tuberculin test, and to the best of our knowledge everyone is satisfied with the results and has full faith in its application. The only regret that I have is that there is not a compulsory law so that we might rid the entire United States of this insidious disease."—Willis Whinnery, Salem, Ohio.

NATIONAL FOREST AREAS CHANGED

The President has just signed a proclamation eliminating 18,153 acres from the Ruby division of the Humboldt National Forest, Nevada. The lands eliminated are in numerous small tracts along the forest boundary at the foot of the slope of the Ruby Range.

By the same proclamation 25,810 acres were added to the Humboldt division. This addition is in a single tract and connects the Humboldt and the Elk Mountain divisions.

As it is better to have a cold dry house for poultry than a warm damp one, some means of ventilation should be provided. There is no better way to ventilate than by opening doors and windows as much or little as weather conditions require, but in all cases care should be taken to avoid any drafts. A cloth curtain over an opening has proved a very successful method of ventilation.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JULY 16, 1919 No. 50

SPEAKS FOR NORMAL GROWTH IN PORK PRODUCTION OF U. S.

Animal Husbandry Head Tells Great Resources in Swine

Pigs Increase in Numbers at a Rate Slightly Greater Than Increase of Human Population; Objects to Be Sought

Swine and dairy cattle form the only branches of the meat animal industry which kept pace with the increase of population in the United States between 1900 and 1918. Pork production during this period rose 40.1 per cent, while the human population increased 39 per cent. The showing of the swine industry indicates that it is a profitable enterprise, that farmers recognize this fact, and that the conditions of American agricultural development do not prohibit its normal growth.

These statements were made by George M. Rommel, chief of the animal husbandry division of the Bureau of Animal Industry, United States Department of Agriculture, at a recent conference in Washington of Federal and State swine husbandmen. He warned that the figures also indicate that pork production can be overdone, but disclaimed any intention to leave the impression that "the brakes should be put on."

"The population of the United States increases between two and three million every year without immigration," said Mr. Rommel. "Many now living will see the time when we have not 100,000,000 people, but 125,000,000 and possibly 150,000,000 people in this country. We must look forward to the time when we have such a population and our plans must be laid accordingly to meet the demands of such a population for food. If we can keep up a normal growth of pork production such as we have had during the last 20 years we will have an ample supply for all of our needs and a surplus to export.

Greater Production Possible

"The United States is the great pork-surplus nation of the world, but this fact should not induce us to encourage an attempt on the part of all the farmers in the United States to see how much they can do in the way of producing pork. Do you realize that if we had two more brood sows on each farm in the United States we would double our pork production in a single year? There are six odd million farms in the United States; so figure out for yourselves what two more brood sows on each farm would do for pork production in America.

"Therefore, it seems to me that we should plan for more efficient methods of production, for better methods of breeding and management and more judicious feeding, for more careful adjustment of the industry to good farm practice, for more careful study of conditions in different regions and for more thorough study of fundamental problems of prime importance.

> **100 PER CENT STRONG**
>
> Nineteen districts of Herkimer County, N. Y., have been reported by the county farm bureau manager as having every farmer in the district a member of the farm bureau. The total membership reported is 1,633.

"I should especially encourage the boys and girls in the pig clubs. There is no greater promise for the future of agriculture of the United States than the boys and girls on the farm who are being brought together in a more or less altruistic way, with a lot of ideals, to work out some farm problems in a better way than their fathers do. I do not believe it is an exaggeration to say that the hope of our agriculture is in these boys and girls.

More Home Production

"I would also encourage the home production of pork. One of the great things in this war has been the development of the South. The Southern States have become more and more self-supporting. They have learned the advantages of balanced farming. One great factor in that has been home food production. Those of you

(*Continued on page 5.*)

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TRACTOR PLOWING PROBLEMS MUST BE SOLVED BY DRIVER

Must Lay Out Fields to Save Waste of Time and Labor

User of Iron Horse Needs to Minimize Periods When Plows Are Out of Ground; Subject in Bulletin

Plowing with tractors presents some problems that never bother the man who uses horse-drawn implements. It is necessary to lay out fields so that a high-class job of plowing can be done over the entire area with the minimum use of a horse-drawn plow in starting and finishing the work, says Farmers' Bulletin 1045, recently published by the United States Department of Agriculture, which gives in detail some of the best methods for laying out land and plowing with tractors.

The methods in general use are divided into two classes in the bulletin—those in which the plows are elevated and no plowing is done across the ends, and those in which the plows are left in the ground continuously. In most cases better plowing can be done when the plows are idle across the ends of the field, and for this reason the methods of this class are more popular, but many farmers prefer the other methods, as they eliminate waste of time and labor.

Plowmen using tractors wish to reduce to a minimum the time spent in running and in turning with plows out of the ground. While it is necessary to do some traveling while the plows are idle, care should be taken not to do too much of it, as it reduces the number of acres which can be plowed in a day, making the tractor that much less efficient. Short turns, however, are awkward for most tractors, and where such turns are necessary the operator often has more or less difficulty in getting the outfit in the correct position for starting into the new furrow at the right point. Some tractors turn more easily in one direction than others, and this should be

taken into consideration in laying out the fields.

Advantages Summarized

The advantages of plowing by the methods in which the plows are idle across the ends of the field are that the short, awkward turns are eliminated, except in some cases at the beginnings and ends of the lands, and usually less space will be left at the corners to be plowed with horses. The advantages of the other methods are that little or no time is lost in traveling with the plows out of the ground, and that ordinarily the number of dead furrows and back furrows will be considerably less.

In using the first-named methods it is necessary to measure the lands in the center of the field accurately, leaving an equal area on all sides of the field in which to turn the outfit, and which can be plowed last by running the tractor completely around the field several times. If one end of the field is unfenced the outfit can be pulled out into a road or lane or an adjoining field for turning. It may be preferable to plow up to the fence on the two sides as the body of the field is being plowed, and leave the headland only across the end of the field which is fenced. The width of the headland will depend largely on the turning radius of the tractor. With easily handled outfits it is not necessary to leave more than 15 or 20 feet, but plenty of room should always be left, and for this reason headlands 50 feet or more in width are preferable to narrower ones.

Careful Plowing Saves Time

If the field is to be finished up in the best manner, with no irregular, unplowed strips between the land or at the edges, it is essential that care be taken to have the headland of the same width clear around the field, to have the distances measured exactly when starting new lands, and to have the first furrows as nearly straight as possible. A little extra time taken in measuring off the necessary distances and setting plenty of stakes for guidance will nearly always be more than returned in saving time at the finish. If the tractor pulls three or more plows, cutting a total width of 3 or more feet, some effort should be made to have the width of the headlands an exact multiple of the total width of the plow, so that the last strip across the field will exactly cut out the land or finish it to the fence. This will do away with the necessity of making a trip across the field, probably over the plowed ground, to turn a narrow strip which has been left unplowed.

When methods are used in which the plow is left in the ground continuously the outfit is started in the center of the field. For the first three or four rounds the plows are lifted at the ends of the furrows, and then they are left in the ground when the turns are made. The outfit is then run around the field until the entire area has been plowed, and if the field has been measured correctly before the tractor started, the last round will plow the land next to the fence on all sides.

There is not much use in starting on the right road unless you keep on moving. Save regularly and get ahead with your War Savings Stamp fund.

Project Farmers Banish Cholera, Produce Feeder Hogs That Satisfy the Critical

Feeder hogs, perfect as to specification and designed to satisfy the most discriminating purchaser, are exported annually from the Belle Fourche Reclamation Project, South Dakota. Approximately 100 carloads of cholera-free and alfalfa-raised porkers are shipped each season. The output for the last few years has been purchased by Nebraska farmers who fatten and condition the hogs for the central markets. A special advantage about such shipments is that the animals need not be held in quarantine while vaccinated to satisfy the requirements of interstate shipment, and the purchaser does not have to bear added expenses, such as yardage and feed costs, which he would have to pay if he bought his stock hogs on the central market.

Fattening Has Hazards

The Belle Fourche Project was recently declared free from cholera by the State live-stock sanitary board. The hog growers of that section have decided it is most profitable for them to produce feeder hogs because the high price and limited quantity of corn in their vicinity available for feeding purposes make the fattening of hogs a hazardous undertaking. On the other hand, alfalfa hay is grown in abundance, and the pasture afforded is keenly relished by the hogs. Hence the project farmers are limiting their operations to feeder-hog production.

A cooperative live-stock shipping association has been organized on the Belle Fourche project to market the hogs in unique fashion this fall. The plan is to secure carload orders for these hogs so that they may be shipped out in small train loads for delivery to points east of the Missouri River. The idea is to have about 15 cars of hogs in each train, these cars being loaded at Newell and Nisland on the project and to be carried to destination, without stopping for feed or water, within the 36-hour limit. Information is being promulgated among the prospective buyers along the route regarding the freight rates on a minimum car of feeder hogs so that they can estimate accurately the gross cost of such a load of quality feeders delivered at their destination. The hogs sold during the fall of 1918 ranged from 16 to 21 cents a pound f. o. b. cars, some of the loads being sold above the market quotation and some of them under.

Interest in Project Plan

The Belle Fourche plan of marketing feeder hogs should be of interest to other stock raisers and feeders in various sections of the country, illustrating, as it does, a new method of feeder-animal distribution. Handling through a cooperative shipping association directly from the producer to the purchaser makes it certain that the buyer will receive the hogs at his station at a minimum cost for handling in transit. Furthermore, the fact that the animals come from a cholera-free country is positive insurance against losses from that disease, if the hogs are not exposed to infection in transit or subsequent to their delivery at their new homes. Prospects are that in the future many South Dakota farmers in the eastern part of the State who raise considerable corn and make a practice of feeding the grain to hogs will rely to a certain extent on the animals coming from the Belle Fourche Project.

CIVIL-SERVICE EXAMINATION

The United States Civil Service Commission announces an open competitive examination for superintendent or forest pathological field station, for men only, on August 6, 1919. A vacancy in the Bureau of Plant Industry, Department of Agriculture, for duty at the Forest Pathological Field Station, near Quincy, Calif., and vacancies in positions requiring similar qualifications, at salaries ranging from $1,440 to $1,620 a year, will be filled from this examination.

Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

HONEST BREEDERS BENEFITED BY GOVERNMENT'S TB. WORK

Unscrupulous Cattle Traffic Runs Afoul of Federal Test

How a Louisiana Owner of Live Stock Prevented a Big Loss in His Dairy Herd; Disease Kept Out

How the Government's tuberculosis testing work is protecting cattle breeders and dairymen from being victimized by careless or unscrupulous dealers is shown in a letter to the United States Department of Agriculture from Dr. L. E. Morgan, of Baton Rouge, La., who states his belief that "this is one of the most important and valuable lines of work that the Government has established in Louisiana. It has been of special benefit to me in that I consider it has almost saved my entire herd from going to the butcher."

Dr. Morgan relates that last October he bought five pure-bred Holstein cows from an Iowa dealer, under the condition that the cattle were to be retested for tuberculosis 60 days from the date of sale, meanwhile being isolated. The test by a Federal inspector showed two of the cows giving pronounced reactions to the tuberculin test, and a third evidencing suspicious symptoms. According to the terms of the sale the reacting cattle were shipped back immediately to the dealer, with freight charges both ways added to the "C. O. D." charges.

Herd Saved from Infection

"If I had not had the Government look after the health of my cattle," writes Dr. Morgan, "the certificates that were sent with these cattle when they came into this State might have been accepted * * * and you know what the results might have been, in that my entire herd of dairy cattle would have been subjected to these infected cattle."

Dr. Morgan also states that the same dealer who had sold him the diseased cattle shipped two other Holstein cows to a dairy farm near Baton Rouge where tuberculosis had never been found, and that these two cows showed symptoms of the disease and were slaughtered. He continues:

"It is unnecessary for me to state to you the amount of damage that such unscrupulous breeders and dealers in dairy cattle can do to the dairy industry of the country, and I hope to see the day come when the Government will stop the movement of all cattle that are infected with tuberculosis. At this time the percentage of dairy cattle in Louisiana infected with tuberculosis is very small, and if the proper steps are taken to prohibit the importation of infected cattle into the State and with the good work that the department is doing to eradicate the animals that we have already infected with this disease, we will be able to keep this percentage at a minimum."

Other expressions from cattle owners follow:

Why Eradicate TB.?

"There are several reasons why breeders should become interested in cooperating with the Federal and State authorities in the eradication of tuberculosis in herds.

"There is a certain pride in knowing that your herd is free from disease and recognized as such. Once free from tuberculosis, the breeder becomes more cautious to see that it does not reoccur in the herd.

"With the educational propaganda distributed throughout the country regarding tuberculosis, buyers are becoming more critical and are partial to accredited herds.

"Many young men, just beginning the breeding business, need every encouragement and safeguard. Disease is one of the factors he must be protected against, both in breeding and buying.

"With an incentive to work toward and the breeding of cattle placed on a higher plane, through the eradication of tuberculosis, the future for the cattle breeding industry seems assured of success."—C. G. Selvig, superintendent Northwest Experiment Station, the University of Minnesota.

Herd Saved from TB.

"Inasmuch as it is impossible to place a value upon the ease of mind coming from the absolute knowledge that the members of one's family and the patrons of one's dairy are using milk and cream from a herd free from tuberculosis, it is impossible to estimate the value to us of the tuberculin test as administered by the Bureau of Animal Industry.

"From a commercial standpoint, however, aside from the danger of actual loss of animals from the ravages of the disease, the fact that our herd is on the accredited list saves us much of the expense of advertising and increases the value of and demand for our dairy products and breeding stock.

"Had it not been for the tuberculin test our entire herd would have been infected by animals purchased about 18 months ago. There were 17 head in the herd and apparently as healthy as one could wish. Upon application of the test by a bureau man a majority of them were found to be tubercular. If these diseased animals had been taken into our herd we would have lost thousands of dollars and several years in putting our heard in the position it now occupies."—P. H. Crane & Bro., Crane Farm, Lebanon, Ind., in a letter to the United States Department of Agriculture.

Must Watch TB.

"Continuous knowledge of the condition of his herd, as to tuberculosis, is absolutely essential to the successful breeder of cattle. Fortunately our herd has again been found free, but had we found reactors, their removal would have made the balance of the herd safe. An initial loss, if necessary, care under department rules, and a clean herd thereafter are sure to result in ultimate great saving, to say nothing of the relief from the grave responsibility farmers and breeders assume who sell dairy products and beef from untested herds."—H. L. Hartley, manager, Island Farm, Duluth, Minn.

Requires Federal Certificate

"I am a firm believer in the tuberculin test as the only method by which to determine whether or not an animal is affected.

"We are unusually cautious about taking outside animals into the herd. We make careful inquiry concerning the reputation and standing of the party from whom we buy them, as to whether or not he has had any tuberculosis in his herd, and whether he has tested for it. We do not take any animal into the herd without a tuberculin certificate from the Federal Government, and subject also to a 90-day retest."—J. M. Hackney, St. Paul, Minn.

WILL PUBLISH TB. LETTERS

The United States Department of Agriculture intends to publish a number of letters from farmers, dairymen, and cattle breeders commenting on the Federal and State plan for the eradication of animal tuberculosis. The department believes they should be convincing to cattle owners who have not joined actively in the fight against this disease. Names will be given with these letters. Many of the writers already are listed in the department's directory of herds officially accredited as free from tuberculosis.

A system of sheep farming that is to be continuously successful can not ignore either wool or mutton. In many cases the two products will be worthy of equal consideration. In others either one may be emphasized according to the peculiarities of conditions, management, and marketing.

FALL FERTILIZERS SHOULD BE CHEAPER IN SOUTHERN STATES

Department Announces Results of Conferences with Manufacturers

Average Price Should Be 30 Per Cent Lower Than During Spring Season; Based on Delivery in 200-Pound Bags

The United States Department of Agriculture announces that farmers of the Southern States should obtain their mixed fertilizers for the fall season of 1919 at an average price about 30 per cent lower than the price which prevailed for the spring season this year.

This announcement for the Southern States follows a similar one made on June 7 for the Northern States. It follows conferences with individual manufacturers which placed the department in a position to state that the basic price of mixed fertilizers f. o. b. the South Atlantic and Gulf ports of Baltimore, Norfolk, Wilmington, Charleston, Savannah, Jacksonville, Pensacola, and Mobile will be the same as the f. o. b. prices at Baltimore, Philadelphia, and Carteret, which established the prices for the Northern States. The accompanying table gives the maximum f. o. b. prices at which mixed fertilizers can be obtained for the South Atlantic and Gulf ports mentioned.

200-Pound Bags Standard

These prices are based upon delivery in 200-pound bags. If in 167-pound bags 25 cents per ton will be added; if in 125-pound bags 50 cents per ton; and if in 100-pound bags 75 cents per ton. The prices are to wholesale dealers and to farmers ordering 30 tons or more.

In general, flat delivered prices prevail in Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana east of the Mississippi River, and Florida west of the Apalachicola River, for which a flat rate of $2.50 per ton will be added to the port prices. In all of these States except Mississippi and Louisiana when the actual freight is less than $2.50 per ton the actual freight is used. For flat delivered prices in Louisiana west of the Mississippi River, Arkansas, Texas, Oklahoma, and Tennessee, $3.75 per ton will be added to the port prices. These flat delivery prices as a rule do not apply to the Chesapeake and Ohio section of West Virginia or over the Overton County Railroad and river landings in Tennessee. In the Chesapeake and Ohio section of West Virginia the f. o. b. factory-point prices plus actual freight from the most favorable basing point must be used to get delivery prices, and to places along the Overton County Railroad and river landings in Tennessee $1.25 per ton is added to the Tennessee flat delivered prices at other points.

Discounts and Additions

In most cases a discount of 50 cents per ton or a f. o. b. factory price of $2 per ton is allowed at interior factory points where delivery is made at the warehouse. For f. o. b. Richmond and Alexandria prices add $0.75 per ton to port prices. For f. o. b. Lynchburg, Buena Vista, and Petersburg prices add $1.50 per ton to the port prices named.

Where deliveries are made in less than carload lots the difference in freight is also to be added. In cases where farmers buy in less than 30-ton lots and buy through dealers the dealer's price for handling the goods (usually $2 per ton) is to be added.

These prices include a 5 per cent discount if paid in cash on December 1, and usually an additional one-half per cent is granted for each full month when cash settlement is made before that date.

Maximum f. o. b. prices at which principal grades of mixed fertilizers may be obtained in 30-ton lots at the South Atlantic and Gulf coast ports.

Ammonia, NH_3.	Phosphoric acid, P_2O_5.	Potash, K_2O.	Price per ton.	Ammonia, NH_3.	Phosphoric acid, P_2O_5.	Potash, K_2O.	Price per ton.
0	12	1	$23.75	3	7	0	$31.00
		2	26.25			1	33.75
1	8	0	21.75	3	8	0	31.75
		2	27.75			1	34.75
		3	30.50			2	37.75
		4	33.50			3	40.50
		5	36.50			4	43.50
1	9	2	28.50			5	46.50
		3	31.50			6	49.25
1	10	0	23.50	3	9	0	32.75
		1	26.50			1	35.50
		2	29.50			2	38.50
		3	32.25			3	41.50
1	12	0	25.25	3	10	0	33.50
2	8	0	26.75			1	36.50
		1	29.75			2	39.50
		2	32.75			3	41.75
		3	35.50			4	45.25
		4	38.50			6	51.00
		5	41.50	3	12	0	36.25
		6	44.50	4	7	0	35.75
2	9	0	27.75			1	38.75
		1	30.50			3	44.75
		2	33.50	4	8	0	36.75
		3	36.50			1	39.75
		4	39.50			2	42.50
2	10	0	28.50			3	45.50
		1	31.50			4	48.50
		2	34.50			5	51.50
		3	37.25	4	9	0	37.75
		4	40.25			1	40.50
		6	46.25	4	10	0	38.50
2	12	0	30.25			3	47.25
		1	33.25			4	50.25
		2	36.25			6	56.00
		3	39.00	4	12	0	40.25

GRIT ESSENTIAL TO HEN HEALTH

Grit is essential to the health of fowls and to economy in feeding. Grit takes the place of teeth in preparing the feed for further digestion and is required for the proper preparation of feed in the gizzard. When the feed is not properly taken care of in this organ an undue strain is thrown on the fowl's system, often resulting in disease, and also allowing much of the nutriment to pass through the bird's body without being absorbed. In every pen or yard a box of grit should be kept. Recent investigators have asserted that grit is a part of the necessary feed, giving the fowls strong bones and a bright plumage.

Consumption of Feedstuffs Varies from Month to Month

Whether the supposition is that the consumption of corn by live stock on farms in the United States varies little from month to month, or that the summer consumption is relatively small, the fact, as ascertained by the Bureau of Crop Estimates, United States Department of Agriculture, is that during the six months from May to October nearly three-eighths of the year's corn ration is eaten, and from November to April five-eighths. The warm-weather fraction will seem large or small according to the size of the guess. Oats, more than corn, is the feed from April to September, and the monthly consumption of oats is more uniform throughout the year than that of corn. Barley, wheat, and rye approach monthly uniformity in degree less than that of oats throughout the year and a concentration of consumption in the colder months is found in hay, silage, and mill feed, as in the case of corn.

Of the year's entire consumption of corn by live stock on farms, the highest consumption in one month is 11.5 per cent in December, and the lowest 4.6 per cent in August. For oats the highest is 9.8 per cent in April and the lowest 6.8 per cent in December; barley, highest 10.9 per cent in November and lowest 6 per cent in June and also in July; rye, highest 10.3 per cent in October and lowest 7.1 per cent in July; wheat, highest 11.4 per cent in November and lowest 5.8 per cent in July.

Mill-feed consumption sags to 4.8 per cent in July and rises to 11.5 per cent in February and again in March. More unequal yet is hay consumption, with its range from the highest, 14.2 per cent in February and also in March to 3.2 per cent in August; and another degree is reached by silage, the consumption of which rises to 16.8 per cent of the year's total in February and falls to 1 per cent in July and again in August.

Dairymen Will Show Their Best Skill in National Milk and Cream Contest

Dairymen who take pride in the high quality of milk they produce will have an opportunity to demonstrate their skill in the national milk and cream contest of the national dairy show to be held in Chicago, October 6 to 12. For 11 of the 12 national dairy shows staged since 1906 these contests, superintended by representatives of the Dairy Division, United States Department of Agriculture, have been outstanding features of the big annual event of the Nation's best dairymen.

A thousand entries from 37 States and Canada have been made in the national milk and cream contest since 1906. Pennsylvania has led with 146 samples, and Ohio and Michigan have second and third places, respectively, with 110 and 99 entries. Twenty-one samples of milk and cream have been submitted from Canada. During this period entries have been received from all the Central States, all the Eastern States except one, all the Western States except four, and the majority of the Southern States. The contest is thus shown to be national in fact as well as in name. Pennsylvania and Ohio have been the leading winners, nine gold medals or first prizes being won by each State. Wisconsin has been a close competitor, with six gold medals to its credit. Second prizes, or silver medals, have been awarded five times to each of the following States: New York, Ohio, and Wisconsin. Maryland and Kentucky each has won four silver medals.

Classes in Contest

This year the representatives of the Dairy Division, who will have charge of the contest, have arranged for the following classes: Raw market milk and cream, pasteurized milk and cream, certified milk, college and experiment stations raw market milk, city health departments raw market milk, and distributors with 10 or more entries from producers. Examination of samples will begin September 29, in order that the work can be completed and records made before the show is over.

In order that all entries from whatever part of the country may be the same age when scored, all samples must be produced or prepared on September 22 and shipped at once. Arrangements will be made to place the samples, immediately on arrival in Chicago, in cold storage, at a temperature a little above freezing. Each entry will be examined for bacteria, fat, solids not fat (except in the case of cream), acidity, flavor and odor, sediment, and appearance of bottle and cap. A perfect score is 100, divided as follows:

	Milk.	Cream.
Bacteria (under 500)	35	35
Fat (milk over 4 per cent), cream over 25 per cent	15	20
Solids not fat (milk over 8.70 per cent)	15	.....
Sediment	10	10
Flavor and odor	15	25
Acidity (less than 0.20 per cent)	5	5
Appearance of bottle and cap	5	5

Advantage to Winners

As the winning of a prize in these contests is considered a great honor and reflects credit on the entire community, and as it is of incalculable value from an advertising standpoint, dairymen, milk dealers, and city health officials should arrange to enter samples and take part in the contest this year. It encourages rivalry among the dairymen in the production of high-grade products, thus tending to raise the standard of the milk they produce. Diplomas will be given to contestants whose entries score above 95, provided they have not received a first or second prize medal. A banner will be given to the city health departments whose shippers (entries from 5 producers) show the average highest score on market milk. When entries are made they should be accompanied by filled-in entry blanks. These blanks and more detailed information concerning the contest can be obtained from the Dairy Division, United States Department of Agriculture, Washington, D. C.

SPEAKS FOR NORMAL GROWTH IN PORK PRODUCTION OF U. S.

(Continued from page 1.)

who have been watching the trend of events know perfectly well that the demand for pork for the southern farms has fallen off to an astonishing degree during the war. In fact, a few months ago a breeders' magazine forecast the disappearance of this demand from the northern markets in a year or two. That is a perfectly logical development. No one can find the least fault with the southern farmer for growing pork and other foods which he needs right on his own farm, no matter what the effect of such a development may be on the industry elsewhere.

"I want to express my appreciation again for the splendid service you men have rendered the Nation in the war. While price had a great deal to do with the increase of pork production, it did not have any more to do, in my opinion, than the splendid efforts of the men who were engaged in the production campaign in practically every State in the Union. We increased our pork production all right enough, 15 per cent in 1918. That is a most conservative estimate. The department has said the increase was 15 per cent in quantity if not in numbers. A market authority has said the increase was 25 per cent in numbers if not in quantity. So we may contentedly rest on our laurels."

SYSTEMS OF FEEDING POULTRY

There are two systems in use for the feeding of fowls, in one of which all the feed is given dry and in the other of which one or more of the daily feeds consists of a moistened mash. For convenience they may be termed the "dry-feed" and the "mash" systems, although in the dry-feed system a dry mash is often fed. Dry feeding is used by many where it is not convenient to make and feed a moistened mash. The greatest advantages to be derived from the dry system are the saving of labor and the lessened danger of bowel trouble resulting from sloppy or soured mashes.

AGENT STOPS USE OF FOUL SEED

About 40 farmers in Poweshiek County, Iowa, had purchased grass seed and were preparing land on which to plant it when the local county agent obtained a sample, which he analyzed. He found that the sample contained a large percentage of weed seeds and quickly notified the farmers who were getting ready to plant. As a result, the agent prevented 1,500 acres of foully seeded grass land. Notification was given the seed company, which made deposits covering not only cost of the seed but transporting charges both ways.

COOPERATIVE SHIPPING PAYS

Members of the farm bureau of Jasper County, Ind., who have formed a livestock shipping association, shipped their first load of live stock the first week of June. The load consisted of 74 hogs, consigned by 18 different farmers. The hogs netted them $19.74 home weights. One of the shippers with 21 hogs was offered $18.50 a hundredweight for his hogs by a local buyer, or $60 less than he received.

People who allow surplus fruits and vegetables to spoil in the garden in summer and buy canned garden products in winter will soon be as scarce as dodo birds.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

12-Year-Old Boy Wins Honors in Sugar-Beet Growing Club

Results in the past year in growiug sugar beets in boys' and girls' club work indicate that the sugar beet as a home garden or as a market crop has many interesting and economic possibilities. It was discovered that the sugar beets grown in the home garden not only offer possibilities for the home manufacture of sugar-beet sirups, but that the sugar beet tops could be used in various ways and were cousidered by many club members who tried them as one of the most interesting vegetables grown at home.

The young, tender beets, as used in the homes of club members, were generally liked as a vegetable for the table; the young tender leaves used as vegetable greens proved popular for table use. The large tops and large beets were also used for poultry feed for both summer and winter months. The tops were stored in silos and the beets in bins aud fed to poultry during the winter months. The sugar beets were also dried and ground into flour and the flour used in mauy instances in the home baking of cakes, cookies, and sweet breads. The sugar beets thus served as an excellent substitute not only for sugar but for wheat flour.

Edwin Heise, 12 years old, of Delta, was the champion sugar beet club member of Utah for 1918. Edwin raised 24 tons and 1,023 pounds of sugar beet on a plat 12 rods wide and 13½ rods long. His profits were $245.10, less $42.55 for expense, or $202.55 net from one acre of beets. Edwin also won a $50 prize and $4.50 bonus offered by a sugar corporation to the champion sugar-beet club member.

The 1,398 club members from 5 of the 33 Northern and Western States reported 22,399 tons of sugar beets raised at a value of $225,814.10.

CLUB BOY RAISES ORPHAN LAMBS

In the spring of 1918 Cecil Murray, of Utah, joined a lamb club because he felt he could best help to win the war in this way. There were many sheep herds on the mountains near his home and each week during the lambing season he made visits to the nearby herds and obtained orphan lambs for 50 cents each. He secured 20 lambs in this way. Later he thought he could do better by takiug one of his father's milk cows with him and camp near one of the large sheep herds. He did this for two weeks and saved lambs on shares. He received one-half of them, or 32 lambs. He would keep them in camp for about three days, feeding them milk from the cow, and then send them home. His lambs cost him an average of $2.50 each when six months old. The total cost of the 52 lambs was $130. At the end of six months their value was $520, making a profit for the season's work of $390.

HOME ACCOUNTS SAVE MONEY

A housewife in an Iowa town found she had spent $42 during one mouth for each member of the family for groceries and meat, and could not see where all the money had gone. The home demonstratiou agent advised her to keep home food accounts, which she did. She noticed at the end of the following month that she had been buying fresh fruits out of season, and she found several other extravagances which were eliminated and which reduced the mouthly expenses for each person to $35. She was so pleased that she began keeping au account of clothing expenses, also. Expenses for each member of the family were recorded on a separate sheet and it was found that a saving on clothes could also be made through studying the account book.

CLUB BOYS NOW ARE BREEDERS

The Marshall County, Ky., Duroc Breeders' Association sent out letters early last spring stating that the organization had 500 Duroc pigs for sale, all of which were eligible for registry. The interesting thing about this organization is that its membership consists mainly of boys who were in club work. It developed from the pig club work among the boys, which began in the fall of 1917. At that time 42 pure-bred gilts were placed among the club members, and the following fall 125 gilts were exhibited by the boys.

Club Boy Sells Boiled Dinners, Wins a State Championship

William Neal is one of the 1,292 boys aud girls in New Hampshire who had a home garden last year. When the time of awards came in the fall, William, who is 13, was given the State championship in the home-garden club project. On the vegetables he raised in a garden containing 1,510 square feet he made a profit of $27.35. His expenses were $9.18. This, in his own words, is how he did it:

"In November, 1917, I plowed the plot ou which I was to have my garden. In the spring one load of manure was harrowed into the soil. The latter part of May I planted lettuce, radishes, peas, beets, aud onions. In about two weeks I planted sweet corn, beans, and carrots and set out 13 tomato plants and some cabbage plants. In two or three days more I planted squash. My sweet corn did not come up very well, so I set some more cabbage plants iu place of the hills of corn. I planted squashes between two rows of peas. By the time the squashes began to run, my pea crop was off. Between the rows of corn and beans I planted radishes, lettuce, and turnips. I hoed my garden quite a number of times during the summer.

"About the middle of June I had lettuce and radishes, which I sold for 5 cents a bunch. On the 3d of July I had peas that I sold for 75 cents a peck and bunched beets that I got 10 cents for. They did not drop in price all summer, and I sold all of mine in bunches. The string beans sold for 50 and 75 cents a peck and my sweet corn for 25 cents a dozen. Tomatoes proved to be my most profitable crop. I sold all of them that ripened and also the green ones, and could have sold many more if I had had them.

"I sold boiled dinners at 50 cents, which consisted of 4 turnips, 12 carrots, 5 beets, and 2 cabbages. In the fall, when I gathered the last of my squashes, I had 123 pounds of squash, 36 cabbages, 4 bushels, of turnips, one-half bushel of beets, one-half bushel of carrots, and 1 bushel of onions. In all I sold $36.53 worth (and made $27.35 net profit). My garden contains 1,510 square feet. I think the home-garden project very profitable, and shall join the club next year."

CLUB MEMBERS INTRODUCE PURE-BRED PIG RAISING

From Holmes County, Fla., comes an interesting story of how club members, through the guidance of the county agent, transformed the pig industry of the community. A few years ago razorbacks

roamed about in the community and shifted for their living, but now many farmers are raising pure-bred hogs under modern methods they have learned from pig-club members.

When Jesse Stevens entered the pig club, no other boy in the community was interested, and no farmers raised pure-bred pigs, but when this pioneer Holmes County pig club member received his first money for club pigs, the county agent also received 15 applications for membership into the club in that community. This boy raised six pigs from the first litter and sold them for $90, which enabled him to pay his note for his original club sow before the money was due.

Another boy who entered the pig club two years ago purchased a gilt for $15 and from the first litter he raised nine pigs, selling seven to club boys for $105. This boy, who has grown beyond the age of club members, sees the possibility of raising pure-bred hogs and has bought a 40-acre farm and is putting into practice on a large scale some of the lessons taught him in his pig club work. When this boy entered the club work, his father was raising scrub hogs, but he soon replaced them with pure-bred animals. He had his herd treated for cholera and is raising all of their feed on his farm.

Two other boys joined the pig club in 1917, each purchasing a Duroc gilt, three months old, for $14 each. Early in the fall of 1917 these sows farrowed 14 pigs and raised 6 boars and 5 sows. When they were three months old, 5 gilts and 1 boar sold for $90, and 2 other boars sold for $12 each. The other pigs were used for pork. The boys paid their notes several months before they were due. Early in the spring of 1919, these sows each farrowed 9 more pigs, and 16 were raised. Five were sold to other club boys for a total of $75. There were 11 males in these two litters, and all are being prepared for pork.

Another boy bought a pig for $10 in 1917 and waited until she was a year old before breeding her. She farrowed 11 pigs and raised 10. He sold 7 pigs to other club boys for $105, and has two boars worth $18 each and a sow worth $15. He was first-prize winner in the corn club in Holmes County two years in succession.

CLUB BOYS WILL HAVE PLACE AT STATE FAIR

A boys' club department has been established in the Florida State Fair and Exposition, and plans for the State club contest are now being printed in the catalogue. At previous Florida fairs prizes have been offered to corn and pig club boys only, but this year those prizes are greatly increased, and prizes on peanut crops, sweet potato crops, and sugar-cane crops are added to the list.

The boys' judging contest, in which the club members will compete with teams from high schools and colleges, will be one of the features of the fair this year. This judging contest is open not only to the young men of Florida but of all southeastern States, and liberal prizes have been offered in judging horses or mules, beef cattle, dairy cattle, and swine.

CLUB BOYS MAY JOIN COUNTY FARM BUREAU

Boy and girl club members in Manistee County, Mich., are to be given an opportunity to become members of the county farm bureau. The members of the bureau arrived at this decision at the annual meeting held recently and are planning to give every encouragement to boys and girls who wish to join their organization. The young people will be kept in direct touch with the work of the bureau, which will better qualify them, when they are older, to carry on the work of the organization.

Other county farm bureaus in Michigan are showing their interest in the boys' and girls' club work. The executive committee of the Washtenaw County Farm Bureau, recognizing the importance of the work of the young people, pays the expenses of its county club leader to the monthly training schools for club leaders conducted at the State Agricultural College.

SCORE CARDS ARE GRADING JUNIOR CALIFORNIA CLUBS

Score cards are used to grade the boys' and girls' clubs in Eldorado County, Calif. An efficiency campaign under the direction of the district and county club leaders is now in progress and is bringing good results, the leader reports. Two inspectors appointed by the president of the club visit each project once a month and attend the club meetings, using the following score card:

Well-conducted meeting, 10 points. The president must be in charge of the meeting and follow the order of business. The vice-president must be present and perform his duties. The secretary-treasurer must have his record book complete to date and must perform in an efficient manner all the duties of his office. Good order and good interest, 10 points. Good reports by members, 15 points. Records of members to date, 20 points. Meetings run on schedule time, 10 points. Full attendance at meetings, 10 points. Credit on percentage of attendance is given according to enrollment. Visitors, 5 points. Ten or more visitors will give full credit, one-half point being given for each visitor. Condition of project, 20 points. Under this heading appearance of project is given 7 points, condition of building or plot 5 points, time spent in caring for it 5 points, gains made, 3 points.

Each club is provided with a dial similar to that of a clock with a hand indicating the standing or rating made at each meeting. This dial on the wall before the club, always registering the gains or losses in standing, is a constant reminder to the members to do better work.

Dodder, Bad Enemy of Alfalfa, May Be Destroyed by Burning

Dodder is considered by many as one of the worst weed enemies of alfalfa. The dodder seeds germinate in the ground and the young plants soon attach themselves to the alfalfa seedlings. As soon as the threadlike stem of dodder is attached firmly to the alfalfa plant the stem connecting it with the ground withers away. Thenceforth the dodder lives entirely on the alfalfa. Special care should be exercised to avoid introducing it in the alfalfa seed at planting time.

Grazing close with sheep has been recommended as an effective control against dodder. In the East, however, where dodder is most abundant, sheep are not plentiful, and it is not possible for every alfalfa grower to use the grazing plan. Besides, grazing an alfalfa field too closely with sheep often results in a permanent injury to the stand. Some authorities recommend the complete removal of the affected alfalfa plants where the dodder appears only in isolated spots through the field. This practice, however, is only successful in the very early stages of the pest and before it has gained much foothold.

A rapid and efficacious method of stamping out dodder, recommended by specialists of the United States Department of Agriculture, is to watch the alfalfa fields for the initial evidences of dodder, and as soon as signs of the pest appear to sprinkle the infected spots with kerosene, apply the match, and burn off the affected areas. This practice kills out the dodder and, properly applied, does not injure the alfalfa permanently. In burning the doddered portions of the field a blowtorch is useful, but where such a device is not available some readily inflammable material, such as waste or old rags wrapped with wire on the end of a stick and soaked in kerosene, will serve.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

CHANGE PASTURE OFTEN TO KEEP SHEEP HEALTHY

In any system of continuous farm sheep raising the health question is of primary importance. This question is chiefly one of internal parasites, and of these the stomach worm is the most widely distributed and the most serious. Fortunately, the trouble is entirely susceptible of practical control, and the methods of prevention are exactly in line with the practices that result in most economical production. It is possible, though doubtful, that the permanent farm flock can be maintained in maximum health when grazed entirely on permanent grass pastures. A system of division of grass land into sufficient parts to allow frequent long periods without sheep and use of longer grass for cattle will assist materially. Such a plan, combined wth occasional use of medicine to prevent too serious infection, may prove to be practical.

The basis of success in the farm sheep business is in the frequency of changing to pastures which have not had any opportunity to become infected with stomach worms by older sheep. These frequent changes are particularly necessary during the stay of the young lambs upon the farm. The older sheep are less susceptible to the effects of the infection, though danger of their being injured thereby is not to be overlooked. The plan of frequent changes to fresh feed can be adapted advantageously to the most economical systems of using high-priced land in the rotation of crops to produce feed and forage for other kinds of live stock.

The principles of flock management for maximum health and for adaptation to other lines of farm production are illustrated in the following outine of a plan of crop production and feeding:

Under a Three-Year Rotation of Corn, Clover, and Small Grains on 160 Acres

25 acres corn: To finish 20 yearling cattle and 40 hogs.

15 acres silage corn.
40 acres wheat and oats.
20 acres clover hay.
} Roughage for 20 cows, 20 yearlings, 80 ewes, and 20 ewe lambs, work stock. Grain for sale or exchange for other feed.

20 acres clover pasture: Season's grazing for 20 breeding cows.

20 acres permanent grass pasture: Grazing for 20 yearling cattle on feed for December shipment.

In the above, sheep would be grazed as follows:

10 acres forage crops.
First. On winter wheat.
Second. On grass pasture with yearling cattle.
Third. With cows on clover pasture.
Fourth. On clover meadow after hay cut.
Fifth. On grain stubble.
Sixth. In cornfields after silage cut or corn harvested.
Seventh. On winter wheat.
At other times on rape, soy beans, or other grazing crops on 10-acre field. Unused forage harvested for winter feed.

Such a plan as this allows sufficiently frequent change of pasture without any part of the flock going upon land that has previously carried sheep in the same year. The forage-crop land is a safety measure for reliance in case of shortage of other feeds and could regularly be used for carrying the reserved ewe lambs from weaning time until winter.

LOSS FROM FOREST FIRES EXPECTED TO BE REDUCED

Increased interest by visitors to the National Forests, settlers, and others, in the forest-fire-prevention campaign, has been shown this year, and there is hope that this year's loss will show beneficial results from the effort to convince the general public that the great woodlands are public property.

The loss in 1918 is considered to have been remarkably small in view of the dangerous condition caused by drought and periods of high winds. Forest fires burned over 695,000 acres of National Forest lands in 1918 and caused a loss of $688,000 to the Government in timber, forage, and young growth, according to figures compiled by the Forest Service, United States Department of Agriculture.

In addition to the actual loss in timber and forage, the fires of 1918 entailed extra expenditures by the Government of $714,000 for the employment of additional laborers to fight the fires, for the purchase of additional equipment and supplies, and for the transportation of the fire fighters.

There were 5,573 fires on the National Forests and all but 2,457 set by lightning were caused by human agencies. Railroads caused 618 fires; careless campers were responsible for 943. There were 257 incendiary fires, which occurred for the most part in Oregon, California, and Arkansas. The remainder of the fires were caused by various forms of carelessness on the part of settlers and other users of the National Forests.

RED GUM TREE YIELDS BALSAM OF TRADE VALUE

Few people in the South, where the red gum tree (Liquidamber styraciflua) grows, apparently are aware that the gum which exudes from this tree when its sapwood is wounded has commercial value. This "sweet gum," as it is commonly called, is similar in properties and composition to the commercial product obtained from a tree (Liquidamber orientalis) indigenous to Asia Minor and known in commerce as "Oriental storax."

According to the United States Forest Products Laboratory at Madison, Wis., small amounts of the dried gum have been used for some time in the manufacture of chewing gum, but since the war curtailed the supply of oriental storax considerable quantities of the fresh "sweet gum" or "American storax" have been put on the market to replace the imported product.

As much as $2 a pound has been paid to collectors of the gum and second hands have sold it for from $2.50 to $3 a pound. These prices, however, are inflated and it is probable that in normal times the gum would not bring more than 50 cents to $1 a pound.

Storax is used in the manufacture of perfumes, tobacco, adhesives, and pharmaceutical preparations, and contains cinnamic acid and cinnamic alcohol, both of which are in demand.

Young pigs should be given their feed in such a manner that each individual pig gets its share. The simplest way to accomplish this is to allow the pigs to eat from a properly constructed feed trough, one that will keep the pigs out of the feed and will lessen the possibility of crowding.

Saving is not a dull duty. It is a ticket to the land of prosperity. Buy War Savings Stamps.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men

BUSINESS MEN GATHER IDEAS OF GOOD FARMING

To learn the methods of most successful live-stock feeders and breeders and crop growers, a party of more than 50 business men and progressive farmers of Arkansas recently made a 10-day tour in Kentucky, Indiana, Illinois, and Michigan. The tour was made under the auspices of the Arkansas profitable farming bureau of the Board of Commerce of Little Rock, and was headed by Gov. Charles H. Brough, of Arkansas. It was 10 days of hard work for the tourists—no advertising, no land selling, and no boosting speeches being permitted. The simple object of the tour was to secure practical information on farm problems. At Purdue University, Lafayette, Ind., the party held a conference with Assistant Secretary of Agriculture G. I. Christie.

The Arkansas profitable farming bureau began work in 1914 and has kept up a persistent campaign throughout the State to make farming more profitable. The bureau works to induce every bank, business house, and commercial club in each town in Arkansas to use every possible influence toward inducing their farm customers to adopt methods that will largely increase the farmer's income. As the farmer's income increases, he will increase his bank deposits and his purchases from the merchants.

The effect of the first four years' work of the bureau was so marked and so profitable to the banks and business men of the State that on January 1, 1919, the Board of Commerce of Little Rock appropriated $18,000 a year for three years for the support of the bureau. Some of the aims are:

To develop the State's cotton yield, not by increasing the acreage but rather by decreasing it and putting into practice better methods of production.

To increase within five years the number of hogs in the State until the farms will permanently keep 1,000,000 brood sows that will have two litters a year. This will mean the marketing each year of 12,000,000 fat hogs.

To stimulate the raising of poultry on the farms until the average income each year from poultry and eggs to the women in each farm home will be $300 or more. This will add $60,000,000 to the yearly farm income of the State.

To increase the planting of legume feed crops for raising and feeding beef cattle on the thin, worn-out, upland soils of the State, which are now being planted to cotton and which produce only one-fourth of a bale an acre even in favorable seasons. It has been demonstrated that such worn-out land, by this method of live-stock farming, can be brought up with a profit each year to produce four times as much cotton, or 75 bushels of corn an acre.

To urge that a second crop, such as soy beans, velvet beans, cowpeas, be planted with each row of corn grown in the State to double the yield of feed, with one expense for preparing and cultivating the land.

The bureau also plans to encourage better dairying and sheep raising. When these things are accomplished, the bureau believes that the farmers of Arkansas will receive for their products each year $300,000,000 more than they are now getting—an average income of $4,000,000 yearly for the farmers in each county.

HELP GET FARM LOANS

The county agents deserve much credit in the number of farm loans secured during the month of May, according to a statement just issued by the Federal land bank at Baltimore. Pennsylvania took the lead during this month in the increase of application for loans. The number of farmers applying for loans increased 86 per cent and the amount of money requested was increased 56 per cent.

This increase is due to the organization of national farm loan associations in 21 counties since February 1, 1919.

TRACTORS DO GOOD WORK

As a result of excessive rainfall, which left the land very compact and heavy, in Jefferson Davis Parish, La., tractors have played an important part in farming operations, according to a report from the farm demonstration agent. Breaking was the difficult proposition. Mules could not do more than four or five days work a week, but farmers who had tractors found that they could do this work very much better and quicker than with mule teams. As a result, there are more than 200 new tractors, or a total of more than 300, in operation in the parish.

STORAGE HOUSES HELP SWEET-POTATO GROWING

As a result of the introduction of modern sweet-potato storage houses in many parts of the South, farmers have become more interested in increasing their sweet potato acreage this year. Particularly is this true in Louisiana, according to a number of reports received from agricultural agents in that State. The agent in Ouachita Parish writes that 38,000 sweet potato plants were received on a cooperative order in lots ranging from 500 to 5,000 to the individual. Additional orders have been secured from growers who intend to use a total of 200,000 plants.

A local concern in Caddo Parish has completed plans to erect a 30,000-bushel sweet potato curing house according to plans recommended by the United States Department of Agriculture. In Allen Parish a number of farmers are considering installing small curing houses for their own use. Already 10 or 12 growers have planned to build these houses, which will have a capacity of from 500 to 1,000 bushels each. Members of the Lafourche Parish Truck Growers' Association each will plant an acre of sweet potatoes, several thousand slips of the same variety having been ordered cooperatively. This crop, reports the agent, has been very much neglected in this section.

Demonstration Work Explained at Farm Community Gathering

One of the communities of the farm bureau of Knox County, Ind., recently conducted a meeting to note the results of a lot of 24 hogs which had been fed with a self-feeder for 70 days. This meeting was called by the chairman of the community committee, and the day before all results of the demonstration were determined and placed on a bulletin board for study.

The farmer who had fed the hogs told the story of the demonstration, while the county agent was continually answering questions put directly to him.

The person who doesn't save goes without worth-while things to-day, and will go without them to-morrow. The person who saves has everything he needs to-day, and will have still more to-morrow. Buy War Savings Stamps.

A Farm House That Jack May Build; Can Be Constructed Piecemeal Plan

"A house better than Jack built," handy, convenient, capable of extension as the finances of the owner and the size of his family justify, and adapted to provide snug, cozy quarters for the farm family, is recommended by the Rural Engineering Division of the United States Department of Agriculture. This house is capable of gradual development in that it can be constructed a few rooms at a time.

Just suppose Jack is a young farmer starting out with limited capital on a 160-acre farm. To begin with, he and his wife need only a small house, such as is shown in figure 1, which consists of two rooms on the first floor, one of which is used temporarily as a kitchen, and two bedrooms upstairs. In this plan the chimney is temporary and will need to be razed when permanent additions are made. There is a full cellar underneath the building, access to which is by means of a temporary hatchway. A permanent, inside cellar stairway is provided for in the first addition. If the young farmer can not afford to put up a front porch, he may add this convenience later on, but for the sake of appearance and comfort he should include the porch at this time.

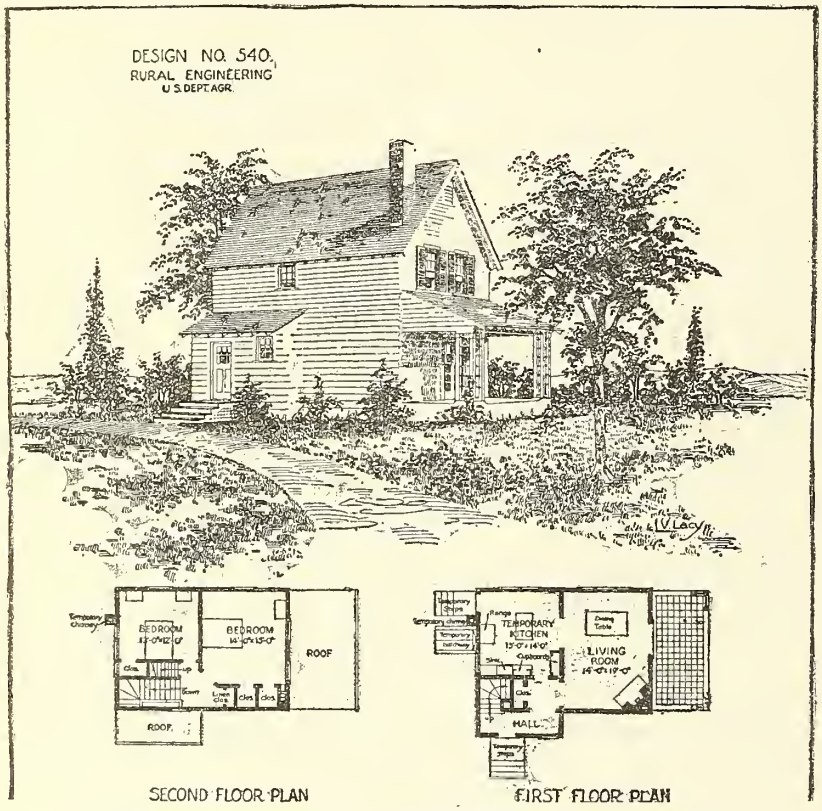


Fig. 1.—This cosy four-room cottage is the first of Jack's carpentry.

Making First Addition

As his farming operations expand and more money becomes available, Jack may add to his small domicile a kitchen and laundry, as shown in figure 2, and install a running water system, than which no feature of the house is more necessary to the comfort of the family. In fact, if his pocketbook will permit, it is advisable that Jack build the house as shown in this plan at the outset, as everything connected with it is permanent and hence does not involve extra expenditure for facilities which will be used only temporarily. When Jack and his hired man wish to enter the house they come in at the rear, grade entrance, whence they can pass up a few steps to the laundry, where they can wash up, and which contains a closet where they may hang their coats before entering the dining room. This entrance also provides ingress to the cellar. The arrangement of the entrance and wash room permits the men to pass in and out from the dining room without going through the kitchen.

Provision is made for a fully equipped laundry, and if finances permit the installation of electric power, a power washer and wringer may be used. A small closet is also provided for an ironing board. In the kitchen there is a broom closet which provides storage for cleaning utensils. Used dishes are transferred from the dining room to the kitchen through a pass cupboard or dresser which is next to the sink and drain board, whence the washed dishes may be removed and placed in cupboards on either side of the sink, where they are available from the kitchen and dining room. Reserve dishes, such as desserts, may be placed in this pass cupboard, where they are accessible from the dining room when required. These uses of the pass cupboard save the housewife many needless steps between the two rooms.

In one corner of the kitchen are a storage pantry, a work table with drawers, and a cupboard conveniently arranged for the preparation of food. The range is handy both to the sink and work table. The space in front of the chimney can be utilized during the summer season for a kerosene oil stove.

Kitchen Freed from Odors

Above the two stoves is a built-in hood, ventilated by means of a register which opens into a flue adjoining the smoke flue. The air in the ventilating flue being warmed by the heat of the smoke flue, tends to rise and create a draft which removes odors and heat from the kitchen. The triple casement windows of the kitchen and the several openings in the laundry assure ample ventilation, which will add greatly to the comfort of the housewife during the summer months. It would be desirable for Jack to include in this first addition the open porch adjacent to the laundry which, if screened, can be used for dining purposes during the summer.

As Jack's family increases or as he needs more farm labor, it becomes necessary to expand the accommodations and he therefore may add an additional bedroom and a bathroom. This involves a one-story addition to the house, as shown in figure 3. All these improvements go to promote general livableness, as a house is not a real home unless every part of it is in constant use.

Because visitors usually call at the rear entrance, anticipating that their knock at the front door may not be heard in the kitchen, where the housewife usually is occupied, the entrance to the house that Jack may build has been placed on the north side, protected by a small porch,

which may be inclosed, and near the kitchen. From the entrance hall all parts of the house are easily accessible; the living room, dining room, bedroom, bathroom, and stairway.

The bathroom and one bedroom have been placed on the first floor because many farm families prefer this arrangement; it has its advantages, too, especially in the case of illness, when the housewife can attend to her kitchen duties and at the same time keep an eye on the patient. The location of the bathroom may not be altogether satisfactory to all Jacks, as it is rather close to the entrance, but this factor is not so objectionable in a farmhouse as in a city or suburban home. The living and dining rooms have the best exposure in summer—the prevailing breezes being from the south and southwest—and they should be the most comfortable in winter, as they are protected on the north side by the bedroom and hall.

Providing An Icehouse

Finally, after several years, if the demands for additional space continue, Jack may add another second-floor bedroom, which can be placed directly over the first-story bed chamber shown in figure 3. Also at this time, if conditions justify, Jack can add a one-story wing at the rear, consisting of an ice house with ice bunkers which provide refrigeration for household foods and for the cooling of milk and cream stored in the dairy room at the back of the wing. If properly insulated, the ice bunkers need only be filled once every week or two, thus eliminating the bother of transporting ice daily from a more or less distant ice house, and the annoyance due to carrying the ice through the kitchen. Fuel storage space is provided under the roof of this one-story wing, so that no matter whether wood or coal is used in the cook stove, the carry is short and all under cover.

The completed design, figure 4, of the house which Jack may build, consists of a structure of seven rooms—a living room, dining room, bedroom, kitchen, and bathroom on the ground floor, and three bedrooms with large closets on the second floor, all conveniently arranged. The commodious cellar provides ample storage room for vegetables as well as space for a heating plant and bunkers for fuel storage. All the porch floors are of concrete, marked off in squares to give a more finished appearance.

The exterior of this house is plain, yet it is pleasing in proportion and line. At any time in the development of this house the owner has a dwelling that is convenient and attractive.

No farmhouse appears to the best advantage without a suitable setting of foliage, just as a painting needs a frame to give it a finished effect. The planting need not be as elaborate as that shown in the accompanying illustrations, but the arrangement should be logical and practical. The trees about the house are both useful and ornamental, they frame the views of the house from the road, at the same time shading the ground and preventing the radiation of heat, which is perhaps as great a source of discomfort in the house as the direct rays of the sun on the roof and walls.

Before a farmhouse is complete the setting of foliage must be developed and at the time the house is planned a planting scheme should be worked out. This planning should be done before the house is begun so as to insure the proper relationship of all the buildings and provision for the best possible means of communication between them and the public road.

In this connection the Department of Agriculture, through the Division of Horticultural and Pomological Investigations of the Bureau of Plant Industry will make suggestions if a plan of the grounds, showing the location of the buildings and all existing permanent objects such as trees, roads, fences, etc., is submitted. The plan, preferably drawn to scale, should have the various measurements indicated in figures and should show the relative elevation of the land.

Working drawings for the completed home as shown in figure 4 may be obtained without cost upon application to the Division of Rural Engineering, Bureau of Public Roads, United States Department of Agriculture, Washington, D. C. In requesting plans reference should be made to Design No. 540.

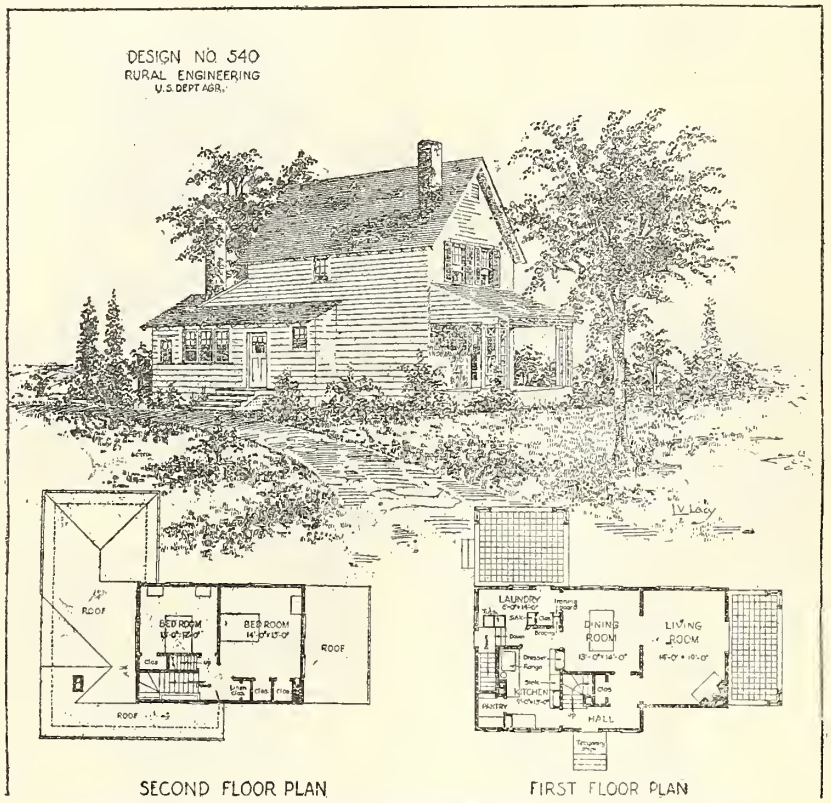


Fig. 2.—The first addition consists of the installation of a kitchen and laundry.

Observe "Rooster Sunday"—Help Production of Infertile Eggs

Much to the sorrow of the roosters in many poultry flocks of the Central West, "Rooster Sundays" are becoming popular. On such designated days, the surplus male birds must sacrifice their lives for the progress of the industry, and the owners thereof then eat rooster for Sunday dinner. It is one of the ways employed to dispose of surplus males in the infertile egg campaign which poultry field men of the United States Department of Agriculture, in cooperation with State officials and others, have been carrying on since the close of the poultry breeding season. The "Rooster Sunday" idea originated in South Dakota, where it was first observed on May 25. In one small town in

that State, more than 75 roosters were sold by the meat markets in observance of the day, to say nothing of the large number that were taken from the back yards at home.

According to the report from one of the department's poultry field men working in Missouri, the infertile egg campaign has been generally observed in the Central West. In Missouri "Rooster Week" was observed in the latter part of May, when the slogan "Sell, kill, or confine the male" was adopted. It was necessary to extend the campaign a few days to give sufficient time in which to eliminate the males from all the flocks as far as possible.

A tour of the commission markets in Kansas City five days after the drive started gave abundant evidence that "Rooster Week" was making good progress in the "show me" State. Many full crates of male birds no longer needed for breeding purposes were found, showing that a bill of expense to their owners was removed as well as the cause of untold waste through fertile eggs, which spoil quickly when exposed to the high temperatures of the summer months.

"Rooster Week" was instigated by the United States Department of Agricultural Extension poultry men, who found ready help from produce dealers and cold-storage operators who handle immense quantities of eggs during the summer months and who have usually found it necessary to cut the price of eggs considerably during hot weather. The reduction in price is due largely to the blood rings and developed hatch spots which constitute a large percentage of the spoiled eggs that reach the market during hot weather. These defects are due directly to the fact that fertile eggs spoil quickly when exposed to summer heat.

Not only have egg dealers given their moral support to the campaign, according to the report, but in some portions of the State covering several counties they have called meetings to discuss ways and means to carry on the work. More than $500 was raised by the dealers to be used in advertising and for prizes to be given for the marketing of better eggs. Fifty thousand copies of a circular containing the Missouri State law, together with valuable suggestions pertaining to handling market eggs, were distributed in one section of the State as a part of the publicity campaign. Articles appeared weekly in the country newspapers giving further information and suggestions.

This sort of work is making unequaled progress for the poultry industry in general, say the department poultry specialists. The system with which poultry extension work is being conducted is very largely responsible for this result. For each season of the year a timely phase of poultry work is demonstrated along the most practical lines. Better methods bring better profits, which attract attention to and respect for the industry as a whole.

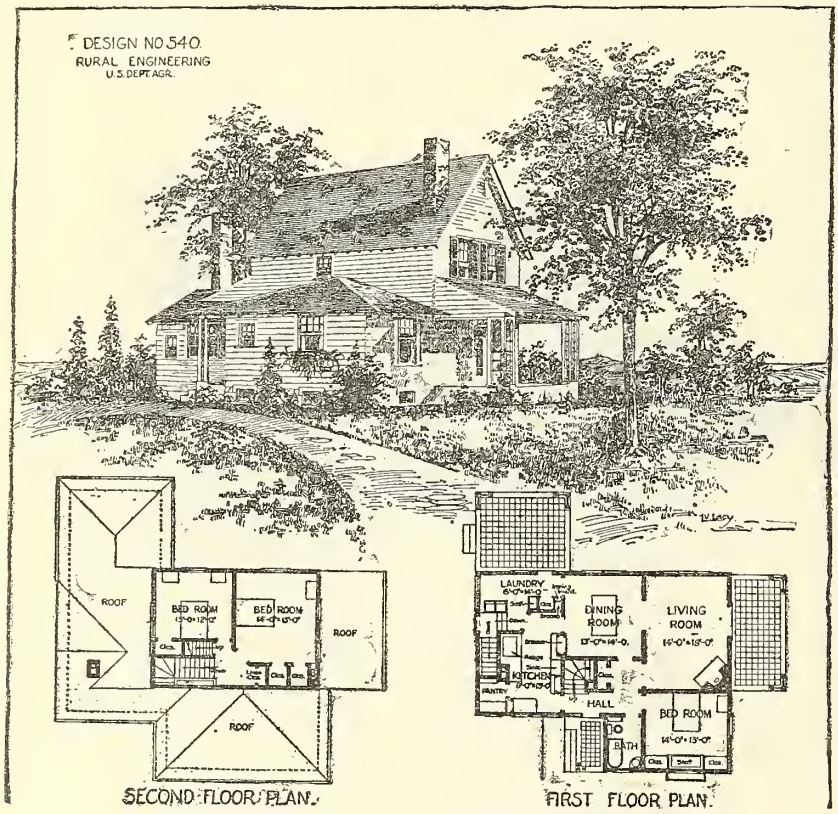


Fig. 3.—Jack's house with another bedroom and a bathroom added.

TOMATO-LEAF BLIGHT LOSSES MAY BE AVOIDED BY SPRAYING

"I wouldn't grow tomatoes in a blight-infested region without spraying," says S. L. Dodd, jr., extension pathologist for the United States Department of Agriculture and West Virginia Agricultural Experiment Station, who sprayed tomatoes for the control of blight in six counties of West Virginia in 1918. Thorough spraying was the keynote of his success. He made six, and in some fields seven applications, using spray mixture at the rate of 150 gallons an acre for mature plants. Spraying improved color and solidity of fruit, reduced rot and sunscald, and increased the yield of ripe fruit 39 per cent, and of both green and ripe fruit 55 per cent.

Small Sprayer Effective

A small knapsack compressed-air sprayer was used in this work. Such sprayers are light, easy to operate, and produce a fine misty spray. Several different kinds, varying somewhat in shape and construction, but built on the compressed-air principle, are now offered for sale.

The spray formula used was 5–5–3–50 Bordeaux soap mixture, composed of 5 pounds copper sulphate, 5 pounds stone lime, 3 pounds resin fish oil soap, and 50 gallons of water.

To reduce the work of preparing spray mixtures the following stock solutions were made: Five pounds of copper sulphate (blue stone) were dissolved by suspending it in a wooden vessel containing 5 gallons of water. Copper sulphate corrodes iron and tin. Five pounds of stone lime (quicklime) were slaked in another vessel by slowly adding water at first and later increasing the volums to 5 gallons. Three pounds of resin fish oil soap were diluted in a third vessel by stirring it in hot water until thin and increasing the volume to 5 gallons by adding water of ordinary temperature.

Have Good Keeping Qualities

These stock solutions keep indefinitely if not mixed or weakened by rain, but the lime should be covered to prevent drying out and air slaking. The level of the liquid when freshly made and after each spray period should be marked on each vessel, and water added when needed to restore loss by evaporation.

Ten gallons of spray mixture are prepared by taking 1 gallon of each freshly

stirred stock solution and increasing it to 3½ gallons by adding water, and by pouring together and stirring the three diluted solutions thus made. The resulting mixture is ready for use as soon as strained and should be used while fresh, as it deteriorates by standing.

Cattle Raising and Dairying Advocated in General Farming

Twenty-nine countries each have more than 2,000,000 cattle. The United States has not the greatest number, as many people suppose, but ranks second to India by more than 100,000,000. During the last 33 years Guernseys led by far all other breeds in numbers of purebred cattle imported into this country, and of the five breeds leading the importations four were distinctly dairy types.

More than 8,750 Guernsey cattle were imported; Jerseys ranked second in numbers, with Durhams, including Shorthorns third, Holsteins fourth, and Ayrshires fifth. The volume of purebred cattle importations has been extremely variable.

These are a few of many facts about the dairy industry that are brought out in Circular 7, recently published by the United States Department of Agriculture, which shows, chiefly by graphic charts, the trend of the industry in this country and its relation to the world trend.

The circular reports statistics of cattle in the various countries as far back as 1850, when the earliest dependable information was recorded. Compared with other decades the world has had more cattle in recent years than ever before, although, it must be remembered, population has increased also. Owing to the wide variations in the quality of herds in the different countries, the circular says, the charts must not be considered as an indication of relative meat or dairy resources.

The circular says the general trend of cattle development is, first, work animals; next, raising cattle for commercial beef; and, finally, commercial dairying in addition to the business of meat production.

Throughout the world the cattle industry shows general growth, but has made its greatest advance in regions where pasturage and feeds are more abundant.

The recent trend of cattle development indicates that beef production and dairying are progressing generally outside of the immediate war area.

Countries which depend largely on imported feeds appear to maintain relatively few cattle in addition to their dairy cows, which have gradually replaced other cattle.

Dairy cows have shown less fluctuation in number than total cattle. This condition is noteworthy throughout the world over long periods including adverse conditions, such as disease, drought, and war.

European experience indicates that when a country has reached the practical limit of cattle the land will maintain, further increase of milk production is obtained by improving the yield per cow.

It appears logical that the United States can best meet changed world conditions, first, by increasing simultaneously both the number and quality of its cattle; second, by constant attention to economy of production; and, third, by maintenance of cattle raising and dairying in conjunction with general farming, thus reducing dependence on purchased feeds.

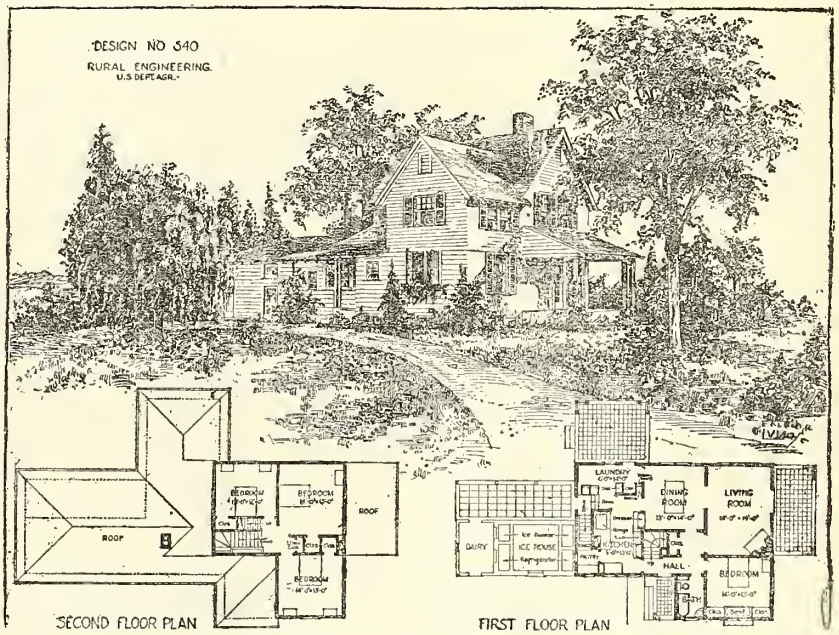


Fig. 4.—The piecemeal house completed and equipped with the practical modern conveniences.

Alfalfa and Clover Leaf Spots Caused by Two Distinct Fungi

Common alfalfa leaf-spot and red clover leaf-spot are similar in appearance but are caused by two distinct fungi, says a specialist of the United States Department of Agriculture who has published the results of studies of alfalfa and clover leaf-spots in Bulletin 759.

The fungus which causes alfalfa leaf-spot lives over winter on dead leaves which escape decay. There are two characteristics of leaf-spot caused by this particular fungus which usually serve to distinguish it from spots caused by other fungi. One is the circular shape and small size of the spots, and the other is a small raised disk in the center of the fully developed spot.

The disease is one of the most serious and widely known of those which attack the foliage of alfalfa. It causes greatest loss during wet weather, and cases have been reported where it has destroyed half of the alfalfa crop.

Little is known of the method by which fields become infested. Efforts to exclude the disease from alfalfa fields in localities remote from other alfalfa by the surface sterilization of the seed have given no success. Evidently, in these experiments at least, the department pathologist says the fungus was not carried on the surface of the seed—probably not with the seed at all. The source of infestation in such fields still furnishes an interesting problem.

A system of sheep farming that is to be continuously successful can not ignore either wool or mutton. In many cases the two products will be worthy of equal consideration. In others either one may be emphasized according to the peculiarities of conditions, management, and marketing.

Government Will Exhibit War Trophies and Demonstrate Activities at 28 Fairs

Itineraries for five circuits of larger fairs and expositions to be visited by combined exhibits from several Government departments are announced as follows by the Joint Committee on Government Exhibits:

Circuit No. 1

	Date.
Missouri State Fair, Sedalia, Mo	Aug. 9–16.
Iowa State Fair, Des Moines, Iowa	Aug. 22–29.
Montana State Fair, Helena, Mont	Sept. 8–13.
Washington State Fair, Yakima, Wash	Sept. 15–20.
Utah State Fair, Salt Lake City, Utah	Oct. 6–11.
Arizona State Fair, Phoenix, Ariz	Nov. 3–8.

Circuit No. 2

Kansas Free Fair, Topeka, Kans	Sept. 8–13.
Oklahoma State Fair and Exposition, Oklahoma City, Okla	Sept. 20–27.
Oklahoma Free State Fair, Muskogee, Okla	Sept. 29–Oct. 4
State Fair of Texas, Dallas, Tex	Oct. 6–19.
Texas Cotton Palace, Waco, Tex	Oct. 25–Nov. 9.

Circuit No. 3

Ohio State Fair, Columbus, Ohio	Aug. 25–29.
New York State Fair, Syracuse, N. Y	Sept. 8–13.
Virginia State Fair, Richmond, Va	Oct. 6–11.
Louisiana State Fair, Shreveport, La	Oct. 22–27.
Georgia-Florida Fair, Valdosta, Ga	Nov. 3–8.
Florida State Fair and Exposition, Jacksonville, Fla	Nov. 15–30.

Circuit No. 4

Minnesota State Fair, Hamline, Minn	Aug. 30–Sept. 6.
Wisconsin State Fair, Milwaukee, Wis	Sept. 8–13.
Memphis Tri-State Fair, Memphis, Tenn	Sept. 20–27.
Agricultural Fair and exposition, Fort Smith, Ark	Sept. 29–Oct. 4.
Alabama State Fair, Birmingham, Ala	Oct. 6–11.
Southeastern Fair Association, Atlanta, Ga	Oct. 13–18.

Circuit No. 5

Rochester Exposition and Horse Show, Rochester, N. Y	Sept. 1–6.
Brockton Fair and Horse Show, Brockton, Mass	Sept. 30–Oct. 3.
Southside Virginia Agricultural and Industrial Exposition, Petersburg, Va	Oct. 14–18.
North Carolina State Fair, Raleigh, N. C	Oct. 20–25.
State Agricultural and Mechanical Society, Columbia, S. C	Oct. 27–31.

Several other fairs have informed the joint committee that they are endeavoring to comply with the requirements necessary to obtain the exhibits, and they may be added to the circuits as now outlined.

The exhibit material on each circuit will fill two freight cars when packed, and for its proper installation for display purposes will require about 8,000 square feet. The material contributed by the Department of Agriculture demonstrates best methods of farming, marketing, road building, and forestry. The War Department is to display a quantity of military equipment and a large number of trophies captured by American soldiers in France. The Navy Department will exhibit naval and Marine Corps equipment, models of fighting ships, and, on one circuit only, the work of the Coast Guard Service. The Department of Commerce is to show the work of the Bureau of Lighthouses and the Bureau of Fisheries on all circuits, and the work of the Bureau of Standards on one circuit only. A mine rescue car of the Bureau of Mines, Department of the Interior, is to be on display at some of the fairs, in conjunction with the other exhibits, and other features may be added before the end of the exhibit season.

The joint committee on Government exhibits is composed of representatives of the various departments cooperating, and is headed as chairman by F. Lamson Scribner, the expert on exhibits of the Department of Agriculture.

WELL-MADE HOG WALLOW IS COMFORT FOR PORKERS

It is as natural for the hog to want to wallow as it is for the small boy to scurry to the old swimming hole with the first breath of spring. Hot weather is hard on fat animals, the portly porker included. That is why a well-made, sanitary hog wallow is like a Coney Island bathing beach for the hogs. A popular and serviceable type of wallow advocated by the United States Department of Agriculture should be made of concrete about 12 inches in depth and large enough to accommodate the herd of hogs. The wallow should be supplied with a satisfactory intake and outlet so that it can be filled about two-thirds full of water and drained every few days, or as often as is necessary to keep the pool fresh and cleanly. At the present time a test is being made at the experimental farm of the Department of Agriculture at Beltsville, Md., to determine the value of the cement hog wallow as a comfort for hogs. The results of this investigation will be published upon completion early in the fall.

The hog grower in many of the leading pork-producing States faces two temperature extremes during the year. During the winter, unless he provides comfortable houses and warm quarters, his hogs are likely to suffer from the cold, while in the summer season he must handle the animals under conditions of extreme heat. Any animal as fat as the average hog which is to be marketed in the late summer or early fall suffers greatly during hot weather, and unfortunately many hog farmers neglect to provide shelter and protection for their hogs from the extreme heat. During hot weather hogs need plenty of shade—natural shade such as is furnished by trees and bushes being the best.

Where natural shade and shelter are not available, the hog owner should put up a temporary shelter by building a framework about 4 feet high and thoroughly covering the top with brush, straw, grass, or hay. This inexpensive sunshade should be of sufficient size to protect a herd of hogs in comfort as they lie under it. As a rule, the ordinary hog house should not be used for shade purposes during the summer. Each year hog mortality is comparatively heavy due to "porker sunstroke" induced by maintaining the hogs in the open without sufficient protection from the ruddy glow of Old Sol's furnace.

BANKERS HELP CLUB MEMBERS

That club work is receiving the approval and support of business men was illustrated when the Florida State Bankers' Association, at its recent annual meeting in Jacksonville, appropriated $300 to pay for three scholarships at the State agricultural college. The scholarships are open to all club members in the State. One is assigned to south Florida, one to central Florida, and the other to west Florida. The quality of club work, together with written examinations, will determine the awards. The Florida Federation of Women's Clubs for several years has offered a prize of $50 to the boy making the best record in the corn club. This prize has been of great value in keeping up interest in the corn club work.

Think in interest—your own interest—save and invest. War Savings Stamps pay 4 per cent interest, compounded quarterly.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

To the Mat—Man or Mosquito?

When Sir Arthur Conan Doyle sent his famous character, Sherlock Holmes, to his supposed death down the abyss of a roaring waterfall, one of his friends protested. "Well," said the author, "I've either got to kill Sherlock Holmes or Sherlock Holmes will kill me." Pretty much the same situation exists in certain sections of the United States between man and the mosquito. If man does not kill the mosquito, the mosquito will do his cussedest toward killing man and, if he doesn't quite succeed, will make him mighty sick. The United States Department of Agriculture is on the side of man in the contest and is preparing for a big drive against the malaria mosquitoes in Louisiana this summer. The details are not completed, but the campaign will begin about August 1 and will be, perhaps, the most intensive one yet put on. Some of the workers are already on the ground. Others who have been engaged in "cootie" work for the Army and still others who have been actually with the Army will be sent to Louisiana within the next few weeks.

Airplanes Find Forest Fires.

Reports to the Forest Service, United States Department of Agriculture, from the national forests in California, where Army aviators are making daily flights in search of forest fires, indicate that the innovation has been decidedly successful and that air patrols of the forests will prove so valuable that they will eventually become a permanent part of the work to shield the great woodlands from conflagrations. Numerous fires have been discovered in their early stages by the aviators and have been reported immediately to the forest rangers. It is believed that considerable loss has been prevented by such early discovery. Lack of suitable landing places in this rugged country has proved a handicap in some instances and has caused a belief in some quarters that dirigible balloons will finally be found more suitable than airplanes for forest flying.

Will Receive Army Equipment.

Surplus engineering and road-building equipment that is to be turned over abroad by the War Department to the Department of Agriculture for distribution among the State highway departments in accordance with the Federal aid road act and its amendments, will be received in France by a special representative of the Department of Agriculture, who also will arrange for its transportation to this country. The special representative is James B. McCord, who until recently was a lieutenant colonel on the staff of Col. Arthur Woods, assistant to the Secretary of War. Mr. McCord has been acting for the Bureau of Public Roads in the transfer of surplus engineering equipment in this country.

Wool Pooling Pays Premium.

In certain sections of the fleece-growing States wool pooling has gained greatly in popularity. Small producers who formerly were unable to market their wool as individuals in a profitable manner can now combine with their neighbors and produce a sufficient supply of graded, quality wool to make it attractive for the eastern wool merchants to bid on these fleeces. During the last year the various cooperative associations have sold their wool for prices ranging from 1 to 8 cents premium a pound above the prices offered by the local buyers for the same clips.

Keeping Fertilizer Pure.

According to information received by the United States Department of Agriculture, the Wichita Union Stockyards Co. is installing a modern drier plant for the disposition of manure, with a capacity of 100 tons a day. This plant of three concrete and metal buildings, includes a storage structure 90 by 150 feet where the manure is delivered by wagons over an inclined viaduct and dumped at the second story. The building is so arranged and located that one entire side may be filled with refuse direct from the stockyards, while the contents of the other side are being emptied into the drier room, mechanical conveyors being used in this work. In passing through the driers, the manure is subjected to sufficient heat to destroy the vitality of all weed seeds and to reduce all hay and straw of the raw manure to fertilizer form. After being dried, the fertilizer will be conveyed through a series of pulverizers and after it is reduced to the desired degree of fineness it will be placed in sacks and stored in the wareroom, which is 60 by 100 feet. Thence the finished product is loaded on cars for shipping to the agricultural districts. This arrangement insures cleaner, more sanitary bins and yards at the market point, while it also protects the farmer who purchases the fertilizer from the introduction of noxious weeds and disease germs to his fields.

Biggest Month in TB Work.

The steady advances being made in the cooperative campaign against animal tuberculosis is indicated by the fact that in May of this year more cattle were given the official tuberculin test than in any previous month. The number of cattle tested was 43,500, and of these 1,837 reacted with symptoms of the disease. There is a greater demand than ever before from live-stock owners for official tuberculin testing, according to the Bureau of Animal Industry, United States Department of Agriculture. Most of the demand comes from owners of pure-bred herds who are anxious to have their animals included in the Government's list of herds officially accredited as free from tuberculosis. The second accredited list is soon to be issued. Forty-two States now are actively cooperating with the department in this work, which is gathering momentum as it goes along, and is expected eventually to clear this country of the dangerous and destructive malady.

Cooks Fireless Meals En Route.

Through the efforts of the home demonstration agent in Tioga County, N. Y., fireless cookers are becoming popular and are proving valuable additions in many homes in the preparation of meals during hot weather. The agent has a very effective way of demonstrating the cookers. Before leaving for a demonstration, she starts a dinner and places it in the cooker, the cooker in turn being put in the automobile in which the trip to the meeting is made. At the demonstration, the agent discusses the fireless cooker and how it can be made at home, and then opens the one she has in her

automobile and demonstrates its possibilities in a practical way by serving a dinner of ham, turnips, onions, parsnips, and potatoes, cooked en route to the meeting.

Hogs Killing Army Worms.

While the army-worm invasion has spread from Texas northeastward until it is now general in the central Mississippi Basin and may soon appear in the Northern States east of the Appalachian Mountains, Nebraska farmers have added a new defense against the destructive hordes. Many of them have successfully used hogs to rid alfalfa of the insects. Hogs are fond of the worms and they will do effective work, especially if enough of them are used. A battalion of porkers placed in the path of the advancing worms may be expected to rout the invaders. Where there are not enough hogs, the use of poison or ditches is recommended by the United States Department of Agriculture. A formula for poison, as recommended by the Federal Department, is as follows:

Wheat bran, 50 pounds; paris green or white arsenic, 1 pound; lemons or oranges, 6 finely chopped fruits; low-grade molasses, such as refuse from sugar factories, or cattle molasses, known as blackstrap, 2 quarts; water as needed, usually from 2 to 3 gallons.

Why Horses Wear Nose Guards.

The horses are wearing nose guards these days in the Northwest. It isn't that somebody has developed cavalry football, neither is it that northwestern horses are given to the fault of stumbling and mashing their noses. It is to prevent the laying of eggs on the horses' lips by the worst, probably, of the three American species of bot fly—the nose fly of horses. This fly is confined to the North-Central and northern Rocky Mountain States. Its egg-laying habits differ from those of the other bot flies, making it more difficult to control. The common bot fly lays its eggs mostly on the forelegs of horses. The second most common one, known as the throat bot fly, lays its eggs mostly on the throat and lower jaw.

Effective control results from going over these surfaces every seven days with a rag dampened in a 2 per cent carbolic acid mixture. But the nose fly lays its eggs where they can not be got at by this method—on the short hairs of the lips just at the moisture line. The United States Department of Agriculture recommends two types of nose guard—or, more properly speaking, lip guard. One is a wide piece of leather attached to the bridle or halter and covering the lips. The other is a somewhat complicated box arrangement that permits grazing. But complete effectiveness is not claimed for these measures. The extension workers of the Department of Agriculture insist on administering carbon bisulphide —"high life"— to the horses in October and November, horse owners, the county agent, and a dependable veterinarian working together. The carbon bisulphide, in three 3-drahm capsules an hour apart, is given by means of a "balling gun." If the capsule breaks and the carbon bisulphide gets into the lungs of the horse, death results. That is why the extension workers insist on having the medicine given by a veterinarian.

Swat the Pedigreed Scrub Hog.

Thousands of pure-bred scrubs are scattered through this country, according to hog-extension men of the United States Department of Agriculture, who are devoting their efforts to eliminating inferior pedigreed animals. This, they say, applies to all kinds of live stock, but is perhaps more general in the hog industry. Pedigrees are necessary and valuable to the hog breeder, yet the pedigree is the means of fooling a lot of farmers, particularly those who are about to start into the pure-bred hog business and who have not had enough experience in judging to select animals of good standard type. Buyers should not be contented simply with pure-bred animals, but should see in addition that the animals they are about to purchase have good quality, say the department hog specialists.

"Dip That Chick!"

"Dip that chick!" It isn't done just for the sake of making a rhyme for "dip that tick," either. Dipping chickens is likely to become more general than dipping cattle, because the chicken louse is a more widely-distributed insect than the cattle tick. The "dip" consists of 1 ounce of sodium fluoride to the gallon of water, which should be at a temperature of 70 to 85°. The dipping should be done on a clear, warm day—never on a cold day. The old way of getting rid of chicken lice was by dusting with dry sodium fluoride. It was effective, but in the case of large flocks it was slow and wasteful, a great deal of the dusting material being inevitably lost. Experiments in dipping were begun by the United States Department of Agriculture in the laboratory of the Office of Insects Injurious to Domestic Animals, Bureau of Entomology, at Dallas, Tex. The experiments proved successful, and the results promise a sure and speedy means of getting rid of one of the worst pests of poultry.

Many Building Hog Crates.

More than 52,000 requests for information on how to make hog-shipping crates have been received by the United States Department of Agriculture. A large number of the requests are from club members, and the percentage received from the South is regarded by officials of the department as an index to the extent of improvement the hog industry has made in that part of the United States. Shipping crates are used extensively in the transportation of breeding hogs and in the shipment of exposition animals to fairs and shows. The type of crate the department specialists have developed and are now recommending has several advantages. It is built with the greatest economy of lumber possible without sacrificing efficiency. It can be easily handled, and provides comfort without loss of space for the hog in transit. A circular of the department tells how to build the crate.

Saving North Dakota's Wheat.

There is a grasshopper outbreak in North Dakota. Left alone it would destroy the bumper wheat crop in the greatest of all spring wheat growing States. In the old days practically complete destruction in the half of the State infested would have been inevitable. Now entomological experts of the United States Department of Agriculture, who are working in cooperation with the State Agricultural College, feel confident that the crop will be saved. The poisoned-bait method is being applied. The State is spending $200,000 in the purchase of poison material. In one county 123 endgate seeders are being used in broadcasting the poison. The campaign will be in many particulars a model of grasshopper-control work, and the North Dakota Agricultural College is making motion pictures of it, which will be available for instruction purposes in other States whenever grasshopper outbreaks occur.

WISE SAVING SPELLS
WAR SAVINGS STAMPS

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JULY 23, 1919 No. 51

FARMERS GET EXCESS PROFITS ON WOOL GROWN IN WAR TIME

Distribution to Be Begun Soon By Department of Agriculture

Domestic Wool Work of War Industries Board Being Completed by Bureau of Markets; Auditing Is Long Task

Collection of excess profits from wool dealers is proceeding and their distribution to wool growers will begin in the near future. This announcemnt is made by the United States Department of Agriculture, which is completing the work of the domestic wool section of the War Industries Board, in accordance with a provision of the agricultural appropriation bill.

Reports thus far received show that excess profits were made by about 10 per cent of the "country" dealers. Correspondence with "distributing center" dealers, whose total reports are not yet completed, indicate that some of them have accumulated substantial amounts of excess profits on the wool which they actually bought. Auditing of the accounts of the larger dealers is a considerable task and will require several months. The Bureau of Markets, which acts for the Department of Agriculture in this work, will inclose with each check sent to a grower a circular letter giving the name of the firm which handled his wool and which has returned the excess profits of which the customer is receiving his share.

No Refunds to Consignors

The department calls attention to the fact that the regulations of the War Industries Board did not permit the purchase of wool in the great wool growing States of the Rocky Mountain and Pacific coast region except in the case of clips of less than 1,000 pounds each. All larger clips were required to be consigned. This region produces about two-thirds of the entire wool clip of the country, which was about 257,000,000 pounds in 1918. Growers in the eastern States were urged to pool and consign their wools and many of them did so. Since the Government paid the dealers a fixed commission on consigned wool excess profits could be made only on that part of the wool which they bought outright. Therefore, growers who consigned their clips should not expect to receive refunds.

Since the Government control of wool has ceased the work of the Department of Agriculture in this connection consists only of auditing the records and accounts of approved wool dealers, the collection of any profits which they may have made in excess of those permitted under the regulations of the War Industries Board, and the distribution by the Department of Agriculture of these profits directly to the growers upon whose wool the profits were made, wherever the identity of the wool can be traced.

Permits Issued to Wool Dealers

The War Industries Board issued permits to about 3,500 "country" dealers authorizing them to buy wool directly from the grower. Permits were also issued to 179 "distributing center" dealers who had facilities for handling wool in large quantities and most of whom were located on the eastern seaboard near the centers of wool manufacture. These larger dealers were required to handle wool on consignment from either growers or country dealers and were also permitted to buy from country dealers direct, or from growers through their agents.

Blank forms calling for a detailed accounting have been sent by the department to both classes of dealers. Reports have been received from about 3,000 of the country dealers and about one-half of the dealers in distributing centers. The taking over of the wool by the War Department was completed so recently that many of the larger dealers have been unable to prepare their reports at an earlier date. The auditing of these reports is proceeding as rapidly as it can be done with the limited force available for assignment to this work, the department says.

PLOW WHEAT LAND BY AUGUST 15

Stubble land that is to be sown to winter wheat should be plowed by the middle of August. The United States Department of Agriculture and State experiment stations have made many tests. Those of the past year corroborate the earlier ones. "The earlier the plowing, the larger the yield," has been accepted doctrine for years. Other things being equal, it holds good.

IMPORTATIONS OF CEREALS RESTRICTED BY GOVERNMENT

Department Acts to Keep Out Flag Smut and Take-All

Seed or Paddy Rice Absolutely Forbidden; Wheat, Oats, and Rye Placed Under Supervision

The United States Government, acting through the Department of Agriculture under the plant quarantine act of August 20, 1912, has promulgated regulations absolutely forbidding importations of seed or paddy rice, and, except under strict supervision, importation of all species and varieties of wheat, oats, and rye in the raw, uncleaned, or unprocessed state from Italy, France, Germany, Belgium, Great Britain, Ireland, India, Japan, Brazil, and Australia. This action is taken because of the danger of further introduction into the United States of the destructive plant diseases known as flag smut and take-all. The quarantine becomes effective August 15, 1919.

It is unimportant as affecting commercial importations because normally the grains mentioned are not imported into this country in quantity. Its object is to control and safeguard the occasional entry of such grains, either as minor commercial importations or for seeding purposes.

Rules Governing Entrance

The regulations governing the entrance of wheat, oats, barley, and rye provide that persons expecting to import any of these grains into the United States must, before the grain is shipped, make application to the Secretary of Agriculture for a permit. This application must state the name and address of the exporter, the country and locality where the grain was grown, the port of departure, the proposed port of entry, and the name and address of the importer or broker in the United States to whom the permit should be sent. If the application is approved, a permit will be issued in quadruplicate. One copy will be sent to the applicant for presentation to the customs officer at the port of entry, one will be mailed to the collector at the port of entry, and one to the in-

spector of the Department of Agriculture at that port, while the fourth will be filed with the application. All permits will be valid from date of issuance until revoked. They will be issued for the ports of Seattle and San Francisco, and such others as may be specified in the permits.

Every bag or other container of wheat, oats, barley, or rye offered for entry must be plainly marked with such numbers or other marks as will make it easily possible to associate the bags or other containers with a particular importation.

Immediately upon the arrival of the wheat or other cereal grain at the port of entry the person to whom the permit is granted must submit notice in duplicate to the Secretary of Agriculture, through the collector of customs, stating the number of the permit, the number of bags or other containers included in the shipment, the bag or container numbers or marks, the country and locality where grown, the name and address of the foreign shipper, the port of departure, the date of arrival, the name of the vessel on which the shipment came, and the designation of the dock where the grain is to be landed.

Must Wait for Release

No wheat, oats, barley, or rye may be removed from the port of entry, nor any bag of it broken or opened except for the purpose of sterilization, until an inspector of the Department of Agriculture gives notice to the collector of customs that the grain has been properly sterilized and released for entry. All apparatus and methods for sterilization must be satisfactory to the Federal Horticultural Board, the agency of the Department of Agriculture charged with enforcement of the plant quarantine act.

Imported grain will be delivered for sterilization to the person to whom the permit is granted upon his filing with the collector of customs a bond with approved security for $5,000, or if the grain be of less value than $5,000, in an amount equal to the invoice value. This release, however, will be conditioned upon sterilization of the cereal under the supervision of the inspector of the Department of Agriculture and to his satisfaction, and upon the redelivery of the cereal to the collector of customs within 40 days from arrival at the port of entry. An exception is made in the case of wheat, oats, barley, or rye imported for milling purposes. In such cases, only the bran, or products containing bran and screenings, need be subjected to sterilization.

Violators Lose Permits

If any person to whom a permit has been issued fails to give any notice required under the regulations of this quarantine, or gives a false or incomplete notice, or mislabels any shipment with intent to evade any of the provisions of the plant quarantine act or regulations under it, his permit may be canceled and further permits refused for importation of any of the products covered by the quarantine. The regulations do not apply to husked or polished rice imported for food purposes.

Supplementary Feeds Help Good Cattle; Pasture Alone Preferable for Scrubs

Feeding cottonseed cake to steers as a supplement to summer pasture in the South increases materially the rate of gains made by the animals, causes them to finish more quickly and take on a higher degree of finish, and increases the margin between the buying and selling prices, specialists of the United States Department of Agriculture say in Bulletin 777, just published by the department. The bulletin is a report of experiments in fattening steers on summer pasture conducted cooperatively by the department and the Alabama Experiment Station in 1912 and 1913, and the Mississippi Experiment Station in 1915 and 1916. Present opportunities for live stock in the South and efforts to reduce production costs make the results of unusual current interest.

All the experiments were carried out under actual and typical farm conditions. Consequently the results may be applied directly in many southern regions to the management and feeding of cattle on pasture. In each experiment, groups of steers were kept on pasture alone; on pasture with a supplementary feed of one-half corn chop and one-half cottonseed cake; and on pasture with a supplementary feed of cottonseed cake. The average daily gains for each animal, which may be considered the most valuable standard in judging the efficiency of rations, were 1.49 pounds for the steers getting pasture only, 1.83 pounds for the steers getting cottonseed cake with pasture, and 1.53 pounds for those on pasture supplemented by the mixture of cake and corn chop.

Supplements Increase Profits

The initial cost of the steers per 100 pounds of the three groups was the same for any one year, but in each case the steers on pasture alone sold for a lower price. The margins between the buying and selling prices of the cattle were always in favor of those which were fed supplements with their pastures. The margins averaged less than 25 cents a hundred pounds for the steers on pasture alone, compared to 90 cents for animals which were fed cottonseed cake with pasture, and $1½ cents for the animals whose pasture was supplemented with the mixture of cake and corn chop. After the animals had been butchered inspection showed that the steers which were fed cottonseed cake or a mixture of cake and corn with pasture dressed out higher than the cattle which had pasture alone.

While the steers that had pasture alone made gains cheaply, the total gains were not large, and the steers did not take on a high finish. Their unfinished condition is reflected in the small margin on which they were sold and low dressing percentages. Thus the profits they returned were smaller than for the steers in the other two groups.

Profits Pay Extra Cost

The cost of gains of steers on pasture is greatly increased by feeding cottonseed cake, it was found, but the better market prices received for cake-fed cattle usually pays for the additional cost of feeding cake, and returns a greater average profit than is realized on the grass-fed cattle. One of the distinct advantages on supplementing pastures for concentrates is the fact that steers so handled can be finished more quickly and can be marketed earlier than steers getting grass alone. Thus the cattle can be sold before the rush of grass-fed cattle gluts the market and depresses prices. Moreover, when cattle are marketed early, the pastures have time to recuperate and furnish good grazing for other stock during the fall.

There is only one case, says the bulletin, when pasture alone is preferable to pastures with concentrates. Steers of inferior quality may return more profit by grazing alone than by grazing with the addition of supplementary feeds, especially when they are on good pastures that are cheap. Scrub steers do not respond readily to the use of good feeds, and even when well finished do not command satisfactory prices in competition with well-bred cattle similarly finished. The better the quality of the steers the safer it is to give them high-priced feeds.

Do you want to work for nothing? Then don't throw away the results of your work on trifling expenditures. War Savings Stamps are a solid, growing return.

WHITE ANTS MAY BE BARRED WHEN BUILDINGS ARE TIGHT

May Cause Serious Injury to Wood Products and Vegetation

Stone, Brick, and Concrete Foundations Help to Keep Pests Out; How to Drive Them from Infested Places

Unless proper care is taken to make buildings white-ant proof and to eliminate these ants from buildings already established, the insects may cause serious damage, especially in the Southern States, say entomologists of the United States Department of Agriculture in Farmers' Bulletin 1037, just published by the department.

White ants, or termites, are essentially wood destroyers, says the bulletin, and live in nests in the wood of dead trees, decaying logs, or stumps in the forests; in the foundation timbers of buildings, fences, and other structures of wood in contact with the ground; or in a labyrinth of underground passages in the earth, usually underneath wood or vegetation. An average colony contains several thousand individuals, but owing to their subterranean habits they frequently carry on their work unnoticed, and it is sometimes very difficult to destroy them once they get established in a building.

Destructive Workers Rarely Seen

Though colonies are made up of both wingless and winged individuals, the grayish white, soft-bodied, wingless workers are the destructive form. These workers make the excavations and live underground, shun the light, and are therefore rarely seen. Always coming up through underground passages, they work in the interior of the wood, and leave intact a protective outer shell, so that the damage is often unsuspected until beyond repair. They gain entrance to buildings through wood which comes in in contact with the ground. Flooring and other stationary woodwork and furniture frequently become infested when the wooden beams are laid directly on the earth or in moist concrete and are often reduced to mere shells, the interior being completely honeycombed. Always the ants prefer to work in dark, warm, moist places.

White ants occasionally injure large trees and shrubs. In Florida they have done notable damage to newly planted groves of orange trees, having eaten the bark about the collar and roots and completely girdled the trees. Similar damage has been recorded to other fruit and nut trees, especially in the Southern States. In the South also these ants occasionally injure the stems and roots of a great variety of grain and truck crops. Injury to corn in the prairie region of Kansas has resulted from the early presence of the insects in enormous quantities in heavily sodded soil where they feed on the roots of the vegetation. There are numerous records of ant injury to young fruit and nut tree seedlings in nurseries and to other nursery stock, and to young trees planted in recently cleared ground or soil rich in humus. The ants also injure a variety of shrubs, weeds, and flowers in gardens as well as in greenhouses.

Protecting Woodwork in Buildings

Since white ants are difficult to eliminate from the woodwork of a building when once established, every precaution should be taken to prevent their gaining entrance. Where possible, foundations of buildings should be entirely of stone, brick, or concrete, including stone columns or pillars in the basement to support the floor above. Make the floors and walls in the basement or cellar of concrete and lay the floors on a gravel base. Where stone or concrete foundations are impracticable, use timber impregnated with coal-tar creosote.

Lay basement window sills and frames over concrete and do not allow the wood work to come in contact with the ground. Never sink untreated timber in the ground or in moist concrete. No wood should be in contact with the ground. Complete dryness of the foundation and basement walls is an important means of rendering buildings safe from attack; therefore, provide for air spaces between the ground and wooden flooring, and see that the basement floors are well-drained.

Eliminating Ants from Buildings

If white ants gain access to buildings, examine the foundation timbers and other woodwork in the basement and determine the point of entrance. After removing the damaged wood, drench the ground with kerosene oil, then replace damaged timber with rock, brick, concrete, or metal work, or if timber must be used, see that it is treated with coal-tar cresote. Since ants always require access to damp earth, shut off this source of moisture and the insects will not be able to extend their work further and will perish.

FOREST LANDS APPROVED FOR NATIONAL PURCHASE

The National Forest Reservation Commission has just approved for purchase 48,581 acres of land for National Forests in the White Mountains, Southern Appalachians, and Arkansas.

The largest tracts are in the White Mountains, where 31,020 acres in Carroll and Grafton Counties, N. H., and 1,220 acres in Oxford County, Me., were approved for purchase at an average price of $7.15 per acre. These lands include the scenic peaks of Mount Chocorua and Mount Paugus, much visited by tourists and made accessible by trails maintained by the Chocorua Mountain Club.

Land in Other States

In Arkansas the approval for purchase covered 6,573 acres, largely in Pope, Stone, Crawford, and Baxter Counties, at an average price of $3.11, and 2,652 acres in Polk, Scott, Montgomery, and Yell Counties, at an average price of $3.71.

In Alabama, in Winston and Lawrence Counties, 3,144 acres were approved for purchase at $4.52 per acre.

In Virginia, in Amherst County, 1,229 acres were approved at an average price of $7.42, and in Augusta County, 1,407 acres at a price of $5.52.

In North Carolina, in Wautauga and Caldwell Counties, 332 acres were purchased at an average price of $9.37 per acre; in Yancey County, 144 acres were approved at $12 per acre, and in Macon County 600 acres at $8 per acre.

In South Carolina, in Oconee County, 190 acres were approved for purchase at $5 an acre; and in Georgia, in Rabun County, 70 acres at $4.25.

Timber Affects Price

The difference in the price of the various tracts of land approved for purchase is due to the difference in the amount of timber, its quality and accessibility.

To date the National Forest Reservation Commission has approved for purchase 1,751,115 acres for National Forest purposes in the mountain areas of the eastern National Forests.

LESS SUGAR CANE THIS YEAR

The United States has 509,000 acres of sugar cane this year, as compared with 527,000, the revised estimate for last year, according to reports from field agents of the Bureau of Crop Estimates, United States Department of Agriculture. The 1919 acreage, however, is still well above the acreage of 10 years ago. This acreage does not include sorghum or other seeded cane, but does include all varieties grown by planting stalks or joints.

Jellies and jams save butter and taste mighty good any day in the year. A wise housekeeper has plenty of them in her preserve closet.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture, Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official coöperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

QUARANTINE REPLACED AGAINST CATTLE TICK

In accordance with an order issued by the United States Department of Agriculture, the Federal quarantine against the cattle fever tick was replaced July 15, 1919, on Brunswick County, N. C. This county was released from quarantine on December 1 last, but the county authorities, the department states, have failed to provide the cooperation necessary to clean up the small amount of territory infested by the fever tick at the beginning of the present dipping season.

The replacement of the quarantine means that interstate movement of cattle from Brunswick County may be made only in accordance with the regulations of the Secretary of Agriculture to prevent the spread of cattle fever which is carried by the tick. The quarantine will remain on Brunswick County, it is stated, until the tick is eradicated to such an extent that there will be no danger of heavy reinfestation of the county.

Because of the failure to clean up Brunswick County completely, the department states, the county has become a menace to neighboring counties which either have eradicated the cattle parasite or are preparing to do so.

HOPE TO MAKE DYESTUFFS CHEAPLY BY NEW METHODS

Cheaper processes for the manufacture of a number of dyestuffs and medicinal preparations will result, it is believed, from discoveries made by experts of the United States Department of Agriculture who have been investigating ways of making certain sulphonic acids. With a view to helping the chemical industry of the country, the department is offering to cooperate with manufacturers in establishing the process on a commercial scale. The expenses of installation are to be borne by the manufacturing concerns cooperating. Experts of the color laboratory of the Bureau of Chemistry will be assigned to the plants and will assume control of the undertaking.

In all such undertakings, the stipulation will be made by the department that the manufacturing concern is not to divulge anything pertaining to the original process or to any that may be developed later, but that the right to patent any or all of these remains in the Department of Agriculture, these patents, if they are allowed, to be dedicated to the free use of the Government and the public.

In the laboratory experiments the sulphonation of a number of hydrocarbons has been studied and in some cases the laboratory work has reached a stage that large-scale experiments are necessary to prove the value of the process. The work on benzene is most advanced. Sulphonated benzene is used in the manufacture of resorcinol and of synthetic phenol. The laboratory work on the sulphonation of other hydrocarbons is nearing completion.

NO FEDERAL QUARANTINE NOW ON INFECTED GRAIN

No Federal quarantine is to be placed against Indiana and Illinois as a result of flag smut and take-all diseases in these States, provided the States themselves take adequate measures to prevent shipment of infected grain. This decision was reached by the Federal Horticultural Board of the Department of Agriculture July 15 at the conclusion of a hearing lasting all day.

Indiana has already taken what the board regards as adequate protective measures. Illinois, though it has done nothing up to this time, agrees immediately to take action paralleling that of Indiana, and the withholding of quarantine is based on the distinct understanding that such effective control will be exercised under State authority as to prevent any possibility of interstate movements of infected products.

The regulations with which the States must comply are:

All infected fields in each area will be thrashed by the same machine on ground where grown, machine not to be used again for thrashing wheat this season.

All thrashing machines and wagons used in thrashing diseased fields shall be thoroughly disinfected with formaldehyde.

All grain from diseased fields to be disinfected with formaldehyde as it comes through the thrasher.

All straw and stubble from infected fields to be burned.

No wheat, barley, rye, or oats to be grown on the infected fields, except by approval of the Federal Horticultural Board, for five years.

No quarantine will be recommended with respect to the wheat nematode or eel-worm disease of wheat, the information brought out showing that it is so generally distributed as to make Federal quarantine out of the question. It can be controlled, the experts said at the hearing, by using only clean seed and rotating crops.

DANGER TO HEALTH LURKS IN CANNING COMPOUNDS

Canning compounds sold under various trade names for use in home canning are often harmful to health and should never be used by housewives, say the specialists of the Bureau of Chemistry, United States Department of Agriculture. These preparations, which are usually in powdered form and contain salicylic acid or boric acid, are unnecessary, since fruits and vegetables can be kept for long periods in perfect condition without any chemical preservatives whatever if proper methods of canning are followed.

The Federal food and drugs act prohibits the use of harmful preservatives in foods which come within its jurisdiction. The food laws of nearly every State in the Union forbid the sale within the State of foods which have been preserved with harmful substances. Although neither the Federal nor State laws apply to foods canned in the home and consumed there, it would seem that the housewife would not knowingly use, in the foods she preserves for her family, substances that are prohibited by law in foods for sale because the substances are injurious to health.

The Department of Agriculture has issued bulletins that give specific directions for the canning and preserving of fruits and vegetables without the use of preserving powders or canning compounds. These bulletins may be obtained without cost upon application to the Department of Agriculture, Washington, D. C.

BOLL WEEVIL TAKING HEAVY TOLL

The heaviest "first crop" infestation of cotton boll weevils on record is now general in all the counties of Mississippi south of Tupelo and Clarksdale, according to the field agent of the United States Department of Agriculture. The weather favors still further propagation. Many farmers, because of the production of the past two years, believed that they could henceforth grow cotton without fear of this pest. The department has, of course, continued to advocate the growing of cotton under precautions against weevils and is now pushing such control measures as are available.

Cattle Owners Tell Why They Support Campaign Against Animal Tuberculosis

"We are very anxious to have you make your final test so that our herd can be entered as a teuberculosis-free accredited herd, as we think this is one of the very best things that can be said of a herd of cows." So writes J. C. Mathews, jr., manager of Elon Farm, Jackson, Miss., to the United States Department of Agriculture. "We think it better than a 'tick-free herd,' for the tick did not give 'tick fever' to humans, but tuberculous cows will in time transmit tuberculosis to people.

"The financial loss from this disease can be as great or greater than any other disease with which cattle breeders have to contend, because it is a very silent worker and will get all through a breeder's herd before he realizes it.

"A 'tuberculosis-free accredited herd' has a very great advantage over those that are not, since you can make shipments at any time without going to the expense of having every animal that is shipped given a separate test before the shipment can be made. This is also an advantage to a buyer, as this extra expense for testing will not be added to the price of cattle bought."

More Than Money Profit

"There is such a pleasure in knowing that your herd is free from tuberculosis, besides the profit in actual money," says a letter from T. S. Humphries, of Durant, Miss. "As soon as my herd had been tested and reported clean without a suspicious animal, I advertised the fact, and from the way my milk sales have continued to increase the public must appreciate the importance of it."

Another letter from W. K. and W. L. Wood, Brookhaven, Miss., says:

"It pays to have your cattle tuberculin tested. We have an advertisement on our delivery wagons, 'Tuberculin tested herd,' and as a result every physician who buys milk is our patron and also recommends our milk to mothers for their infants. We have made three shipments of dairy cows to Louisiana, where a tuberculin test is necessary in order to ship cattle into that State. On account of our ability to show parties buying that we have undertaken this opportunity and can exhibit at once a record of the test, we sell at once at much better prices than those who have not tested."

Valuable in Cattle Exports

"We consider cooperative tuberculosis eradication work as now being conducted to be the greatest forward step that has been taken in a decade, and any breeder who fails to cooperate in this work is confessing that he fears the test. Our opinion is that the law should be compulsory in every pure-bred herd of every breed.

"From a selfish standpoint, will say that putting our herd under State and Federal supervision is the best and cheapest advertisement that we ever made. It is also invaluable in our export work. We have a considerable trade on cattle going to other countries, and having the Federal test on our whole herd saves us considerable inconvenience in having to make a Federal test of each individual shipment."—R. R. Giltner, Giltner Bros., Eminence, Ky.

Believes in TB Fight

"All owners and breeders of dairy cattle should avail themselves of the opportunity the Federal and State authorities are offering to assist in the eradication of tuberculosis." This is stated in a letter from A. A. Pigford, farmer and stockman of Lumberton, Miss.

Loss, Disappointment, from TB

"The value of keeping a pure-bred breeding herd free from tuberculosis can not be overestimated. It is the opinion of the writer that about as much money is lost and about as much disappointment experienced in allowing tuberculosis to become disseminated in a herd as by bad management of any other character. The wise breeder will waste little time in having his herd tested for tuberculosis. Surely no breeder should start in the business without purchasing tested animals." E. S. Good, chairman Animal Industry Group, University of Kentucky, Lexington, Ky.

Keeping South Free from TB

"I regard eradication of tuberculosis among cattle as one of the best things the Government has undertaken to aid the cattlemen," says a letter from G. H. Love, superintendent of the Holmes County Agricultural High School, Goodman, Miss. "To the people of the South I think this stands next to tick eradication. To the dairyman the satisfaction of knowing that his herd is free from tuberculosis gives him a feeling of security that his own family is safe from this dreaded disease, and not only his own family but his customers as well. We people of the South should especially welcome this aid, because we have so far had very little tuberculosis, and this work helps to prevent its introduction."

WILL PUBLISH TB. LETTERS

The United States Department of Agriculture intends to publish a number of letters from farmers, dairymen, and cattlebreeders commenting on the Federal and State plan for the eradication of animal tuberculosis. The department believes they should be convincing to cattle owners who have not joined actively in the fight against this disease. Names will be given with these letters. Many of the writers already are listed in the department's directory of herds officially accredited as free from tuberculosis.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended July 12, 1919:

Factors Influencing the Carrying Qualities of American Export Corn (professional paper). Department Bulletin 764.

Fattening Steers on Summer Pasture in the South. Department Bulletin 777.

Saving Man Labor in Sugar-Beet Fields. Farmers' Bulletin 1042.

Miscellaneous Agricultural Statistics. Yearbook Separate 795.

The Black Stem Rust and the Barberry. Yearbook Separate 796.

A Summer Vacation in the Sopris National Forest. Department Circular 6.

Trend of the Dairy-Cattle Industry in the United States and Other Countries. Department Circular 7.

Mountain Playgrounds of the Pike National Forest. Department Circular 41.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

Three Methods for Taking the Hop Out of Grasshoppers

The periodical cicada, an insect almost uinversally miscalled the 17-year locust, has a bad reputation, but the destruction it causes is negligible compared to that wrought by grasshoppers—which, by the way, are true members of the locust family. The cicadas have been blamed for much of the work of the grasshoppers.

Both the young and old hoppers gnaw and devour the grain crops wholesale, and work in large swarms which sometimes attain sufficient numbers to consume almost every green thing in sight.

Dry weather ordinarily favors the successful hatching of the eggs and the subsequent development of the hoppers, while cool, wet weather, as a rule, is unfavor-

able, and grasshoppers often die in great numbers from disease when weather conditions of this character prevail. The grasshoppers lay their eggs in the soil, the banks of irrigation canals being favored for this activity, and the young grasshoppers appear the following spring. In some of the Southern and Southwestern States the hoppers emerge as early as February, while in northern territory the eggs are not hatched before the middle of May or the first part of June. The young grasshoppers are active and able to hop almost immediately upon emergence from the eggs. In 70 to 90 days they attain maturity and develop wings. Hence the time for the farmer to attack the pest is during its young stages.

Three Methods of Control

There are three methods of controlling grasshoppers, according to specialists of the United States Department of Agriculture—destruction of the eggs, catching the insects in the fields by traps, and use of poisoned baits. Wherever possible, the ground containing the grasshopper eggs should be thoroughly plowed or disked and harrowed in the fall, as these operations prevent the eggs from hatching the following spring.

The hopperdozer is a mechanical control implement and consists of a galvanized sheet-iron pan or trough having a back rising at right angles to the pan. It is about 16 feet in length and mounted on runners made of wood or old wagon tires. Hopperdozers often are made of a pan of galvanized sheet iron, but the back and side wings are usually built with a wooden frame covered with stout muslin or light cotton duck, thus securing lightness and elasticity of structure. The insects hop into this trap, which is drawn across the field by horses. As many as 300 bushels of grasshoppers have been collected by the use of hopperdozers on 100 acres of alfalfa. However, these devices can not be used on uneven, stony, or recently cleared, stumpy ground, nor in meadows or fields of grain where the crops have reached considerable height. Hence, it is necessary to use poisoned bran bait to eradicate the grasshoppers which can not be controlled in other ways.

How to Make Poisoned Bait

As ordinarily prepared, the bran bait is composed as follows: Wheat bran, 25 pounds; Paris green, 1 pound, or white arsenic, 1 pound; 6 fruits of finely chopped lemons or oranges; 2 quarts of low-grade molasses; 2 to 4 gallons of water, according to climatic conditions. The bran and Paris green or other arsenical are thoroughly mixed while dry. The fruits are then finely chopped and added, and last the diluted molasses is poured over the bait and the whole thoroughly kneaded. This amount of poisoned bait is sufficient to treat about three acres when the grasshoppers first hatch. Later, when they are nearly full grown, this amount will suffice for about 5 acres if sown broadcast in strips 1 yard apart.

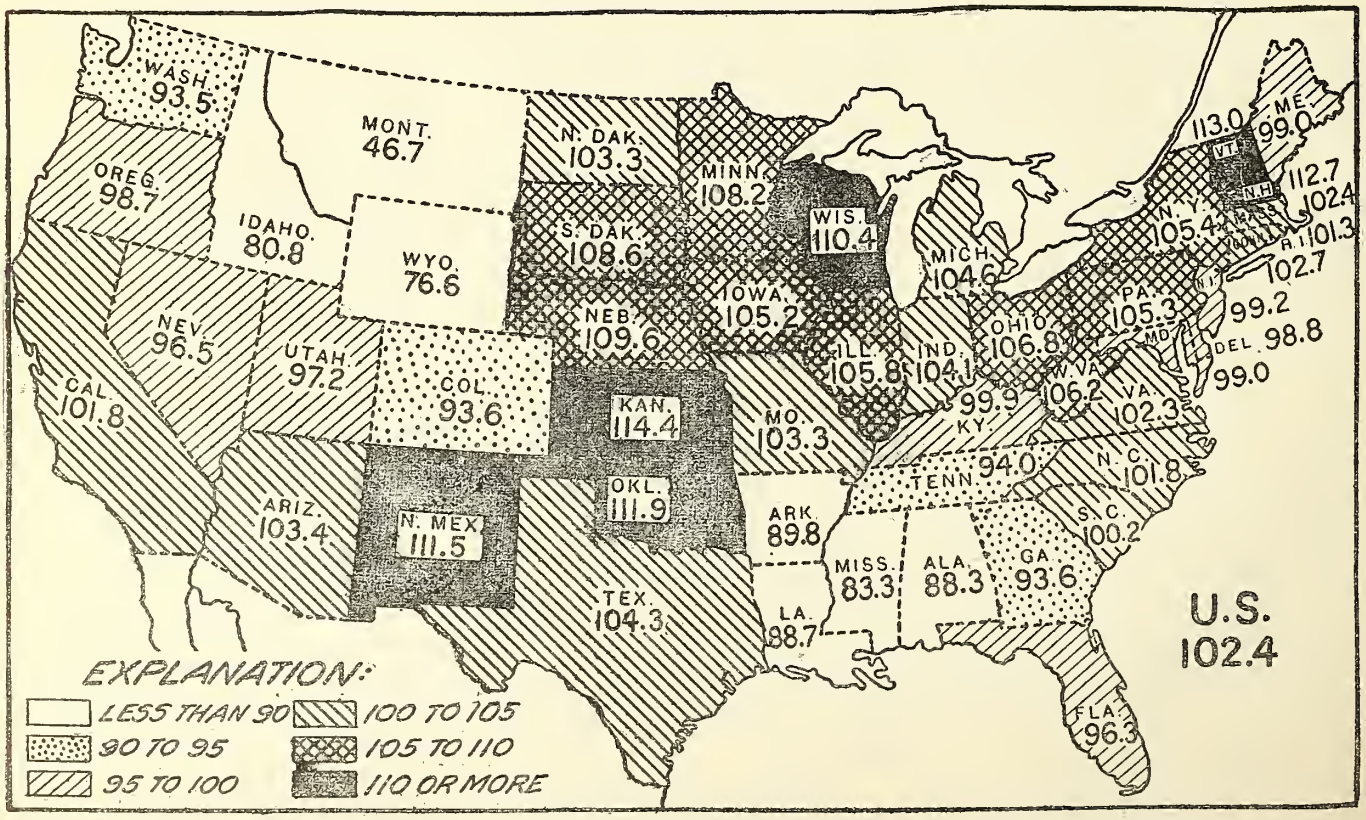
Blow flies, robber flies, and digger wasps all prey upon grasshoppers, while wild birds, from the minute humming birds to the mammoth hawks, also assert a marked control.

Complete information relative to grasshopper control is presented in Farmers' Bulletin 747, which has just been reissued by the United States Department of Agriculture, a copy of which will be mailed free to any farmer on request.

SCOUTMASTERS LEARN TO COOK

The thrift kitchen in Syracuse, N. Y., was designed primarily to help women in their household problems, but a new use for it was found when masters of boy scout troups began to take cooking lessons to get knowledge that they will pass on to their young followers.

GENERAL CROP CONDITIONS JULY 1.



The map shows the composite condition of all crops in each State on July 1 as reported by the Bureau of Crop Estimates, United States Department of Agriculture. The relative importance of each crop is considered in obtaining the State averages. One hundred represents the 10-year average (not the normal) condition of the State.

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

New Record in Road Work.

During the month of June the Secretary of Agriculture approved project statements for 133 Federal-aid projects, involving the improvement of 1,390.29 miles of road, at a total estimated cost of $24,220,808.90, and on which Federal aid in the amount of $11,034,289.12 was requested. This represents the largest number of project statements approved, the largest estimate of cost, and the largest amount of Federal aid requested during any month since the passage of the Federal-aid road act.

During the month there were executed by the Secretary and the State highway departments 60 project agreements, involving the improvement of 507.37 miles of road, at a total estimated cost of $7,566,089.32, and on which $3,404,269.18 Federal aid was requested and set aside in the Treasury. In addition, 40 project agreements previously executed were amended during the month.

Up to and including June 30, 1919, project statements for a total of 1,319 projects had been approved. The 1,319 projects involve 12,790.37 miles of road, a total estimated cost of $133,833,300.67, and a total of $54,763,957.81 Federal aid. On the same date a total of 677 project agreements had been executed, involving 5,776.39 miles of road, a total estimated cost of $56,367,334.94, and a total of $23,892,740.97 Federal aid.

"Charge of Ticks" in Cartoon Film.

The cattle fever tick has not been a pest to laugh at. Its annual damage to the southern live-stock industry, direct and indirect, has been estimated to be $100,000,000 a year, but with the steady advance of the tick-eradication campaign the time is approaching when southern farmers and cattlemen can cease dipping their cattle long enough to laugh. When they get completely rid of the ticks they will have reason for merriment.

To give them a real reason for laughing—through bringing nearer the end of the tick by pointing out how to exterminate it—the United States Department of Agriculure has issued a motion-picture cartoon film which, itself, is worth looking at and laughing at. It is called "The Charge of the Tick Brigade," and that means not only the armylike attack of the insects, but the money charge that they assess each year against southern cattle. The film is to be shown extensively in the tick-infested regions.

"Vacation Land" for Everybody.

Americans everywhere are invited to make use of the "ideal vacation land" that exists in the national forests. Most of the great woodlands are in the Western States, but some are in the East, so that no section of the country is too distant to share in their benefits. The Forest Service of the United States Department of Agriculture is endeavoring to bring about a full public realization of what the forests offer.

"You will encounter no 'Keep Out' signs on the forests," says one of several booklets issued by the Forest Service. "They are not fenced against the public, but invite your presence and use. The only signs you will find are those which point you on your way or ask your cooperation in preserving the beauty and value of these free recreation grounds and their resources. Firearms are not barred, and hunting and fishing are restricted only by the requirements of the State game laws.

"You are welcome to all the necessary firewood and to forage for your saddle and pack animals; and, so far as possible, the grazing of commercial stock is regulated in such a way as to save an accessible supply of forage for the camper's use. You may camp where you like and stay as long as you please. The Forest Service asks that you look only to the proper sanitation of the camp and that you be careful with fire."

Information on the forests will be furnished to all who apply to the forest supervisors, the district foresters, or to the Forest Service at Washington, D. C.

New Boll Weevil Poisoning Machine.

The limiting factor in cotton boll weevil control by poisoning is the lack of machinery for dusting powdered calcium arsenate, the only poison that has been found sufficiently effective. There is a shortage of calcium arsenate, but the machinery obtainable is not sufficient to handle the quantity of poison available. There are only two types of dusters, a small hand affair that can not be used successfully on more than about 40 acres of cotton, and a large power machine that is too expensive for use on less than 200 acres of cotton in a body. The main need is for an intermediate type of duster, suitable for use by cotton growers whose plantings run from 50 to 200 acres. Such a machine is in course of construction by the United States Department of Agriculture at the Delta Laboratory, Tallulah, La., and will be on the market for the cotton-growing season of 1920. It will be operated by wheel traction, will cost about $75, and will cover in the neighborhood of 20 acres a day.

Department Exhibit at Swine Show.

The National Swine Show for 1919 will be held at Des Moines, Iowa, September 29 to October 4. This annual event is without doubt the most important one connected with the swine industry. At the 1918 show held at Cedar Rapids, Iowa, the United States Department of Agriculture made an exhibit of smoked meats. It is the intention of the department this year to make a much larger exhibit than it did in 1918. In addition to the showing of smoked meats, the methods of curing meats in different ways will be explained. The home curing of pork is one being studied by many farmers who have heretofore been in the habit of purchasing their meats from the local dealer.

Will Investigate "Soft Pork."

The problem of soft pork is one of the most important now confronting the hog growers of the United States. That a more definite knowledge of this question might be available Congress has appropriated $20,000 to be used by the United States Department of Agriculture for a study of this question. It is the intention of the department to make a study regarding the effect of feeding both peanuts and soy beans to hogs. Possibility of hardening hogs fed on these feeds will be looked into to determine the maximum amount that may be fed in conjunction with other feeds and still produce hard pork. The department hopes by close study, covering a large number of hogs and several years' time, to determine some facts and solve some problems that are now facing the American farmer, because of the reduced price paid at the central markets for hogs supposed to be soft. Many of the agricultural experiment stations will cooperate closely with the department in these studies.

When to Wean Pigs.

At the conference of swine extension workers of United States Department of Agriculture, held recently in Washington, the question of weaning pigs arose.

The discussion brought out the fact that in some parts of the country farmers followed the practice of weaning their pigs at most all ages from five weeks up. The conclusions reached were that for best results pigs should be allowed to nurse the sow for at least 10 weeks where it is possible to do so. It was decided that it would be still better to allow the pigs to wean themselves. A good suckling sow properly fed should be in a good flow of milk up to the time the pigs are at least 10 weeks of age. Without question the mother's milk is the best feed possible to obtain for young pigs. Consequently hog growers should take advantage of this natural feed to the greatest extent possible.

Select Seed Potatoes at Harvest.

The custom of using as seed potatoes left from the previous season's crop, after having disposed of the best, must be discontinued if the present quality and yield of the crop is to be materially improved, say specialists of the United States Department of Agriculture. The grower can not expect to get maximum yields from inferior seed stock any more than the dairyman can expect to get maximum milk yields from scrub cows. The best time to select seed potatoes, according to the specialists, is in the fall when the crop is being harvested. Then the yield of the individual plant and the quality of the tubers can be considered.

Good seed is pure in respect to the variety; is produced by healthy, vigorous, heavy-yielding plants grown under favorable climatic conditions; is somewhat immature; reasonably uniform in size and shape; firm and sound. The first sprouts should begin to develop at planting time.

Good Roads Save Money.

The improved roads of Milwaukee County, Wis., save $25,000 a day to the people who use them. This is the estimate of the county commissioner of highways, as reported to the Bureau of Public Roads of the United States Department of Agriculture. The statistics are based on a census of the traffic taken periodically during the past four years. The census is made by selecting 52 points scattered throughout the county, and making seven counts at each point, one for every day of the week. The count is not made on consecutive days, but at various periods from April to November, so as to arrive at average conditions. This census is taken to determine the durability of certain types of pavement, according to the amount of traffic a square yard. It shows that about 25,000 vehicles of all kinds travel the highways each day. Traffic on the road has increased about 42 per cent a year during the four years in which the survey has been made.

Quality Hogs for the Pork Barrel.

Farmers throughout the country are using improved hog-breeding stock more generally than ever before, report specialists of the United States Department of Agriculture, as they are learning that the best stock yields the most profits, and hence are more careful in their selection of breeding animals. Farmers, as a rule, seem to be pleased with the outlook for the hog raiser, and the indications point to a large increase in the number of litters to be farrowed next fall. Much trouble was experienced with the early spring litters because of cold weather at farrowing time and on account of feed shortage and the high price of protein feeds, causing many stockmen to allow their brood sows to get into poor condition, with the result that small and weak litters were farrowed. In the main, these farmers have learned a costly lesson, and henceforward it is presumed that they will provide better housing and farrowing conditions as well as ample food of the right mixture for their porkers.

Votes for Big Bond Issue.

The largest bond issue ever submitted in any county in Texas and one of the largest voted anywhere in the country was ratified by a big majority recently in Dallas County, Tex. It provides $6,500,000 for a complete belt line around the county, with 12 roads radiating from Dallas to all sections and 6 intermediate roads connecting the radial highways. The system provides for 332 miles of road, and in addition feeder roads amounting to about 100 miles will be improved by the decrease in maintenance expenses. Federal aid amounting to $250,000 had been allotted to Dallas County for its highway development, and it is expected that a large number of motor trucks will be assigned to assist in the construction work. The favorable reception of the big bond issue in this county is expected by officials of the Bureau of Public Roads, United States Department of Agriculture, to have a favorable effect on similar proposals elsewhere. Road building in Texas is at high tide. State highway engineers estimate that more than $20,000,000 worth of roads are now under construction.

Starts Pure-Milk Work Again.

A lot of things besides soldiers that were drafted for the war are getting back to their regular work now. Among them is the dairy sanitation work of the United States Department of Agriculture—that part of it that cooperates with city health boards in improving the quality of the city's milk supply. Last year most of the force available for this purpose was required at military cantonments in cooperation with the United States Public Health Service. This year the men are again available for direct work with city boards of health, but there are more requests than can be taken care of as they come in. So far this year campaigns for improvement of the milk supply, in which department milk specialists participated, have been put on at Wilmington, Del., Trenton and Perth Amboy, N. J., Springfield, Ohio, and Racine, Wis. Campaigns will begin next week at Charlottesville and Danville, Va. Requests for assistance have been received from Davenport, Iowa, and Huron, S. Dak., and campaigns will be arranged for those cities as soon as men are available for the work in the Dairy Division of the Bureau of Animal Industry of the department.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces open competitive examinations for the positions of assistant plant pathologist, $1,620 to $2,040 a year, and field assistant in plant pathology, $1,200 to $1,560 a year, for both men and women. A large number of vacancies in each of these positions in the Bureau of Plant Industry, Department of Agriculture, for duty in Washington, D. C., and in the field, will be filled from these examinations. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Cotton classer's helper, for men only, on August 20, 1919. Vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field, at $600 to $1,200 a year, will be filled from this examination. Applicants should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

YOUNG HENS BEST LAYERS

There are people who have the right variety of fowls, who house and feed them properly, and yet who can not obtain eggs early in the winter because their fowls are too old. It is seldom that it pays to keep hens for laying after they are two and a half years old; not that they will not give a profit, but that younger fowls will give a greater profit.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

Weekly News Letter

Published by the
United States Department of Agriculture
Washington

VOL. VI JULY 30, 1919 No. 52

UNITED STATES DOMINATES WORLD IN PRODUCING SWINE

Vast Extent of Industry Cited as "An Anchor of Confidence"

Pork Products Seem Well Established in American Diet; How Department is Giving Help to Hog Raisers

The United States contains considerably more than one-third of all the swine in the world. Swine are less numerous than either sheep or cattle in the world at large, but are more numerous than either in the United States, which this year has more hogs than its 10 nearest competitors combined.

These facts showing the vast extent of the American hog-growing industry are cited by Dr. J. R. Mohler, Chief of the Bureau of Animal Industry, United States Department of Agriculture, as "an anchor of confidence for weathering periods of adversity in pork production."

He concludes that pork products have become as well established in the diet of the American people as hogs have become established on farms, and that as more than two-thirds of the total 1918 exports of meat were pork products and more than five-sixths of the animal fats exported were lard, there is a great potential pork-absorbing ability in the densely populated European countries.

"We must take care of that business properly and realize that conditions are constantly changing both at home and abroad," says Dr. Mohler. "We must study carefully what to do next, and then do it promptly."

Foreign Demand for American Pork

Latest reports from department representatives in Europe indicate that pork importation by the United Kingdom may be considerably smaller in the future than during the war, price being an important factor. In general, it appears that American fresh-pork products have met with favor on the British markets, but there is room for improvement in the curing of hams and bacon. It is reported from France that the swine industry there decreased most rapidly between 1913 and 1916, but the decrease since 1916 has been comparatively small. Rapid recuperation seems possible with a good grain and potato crop this year and a continuation of present high prices. While the best grades of American hams and bacon met with French approval, it is said that these products are too expensive for the average French family. It is not likely that France will import breeding swine to any large extent, although continued importations of meats and fats are expected.

South America, on the other hand, is importing swine from the United States with considerable regularity. Since the first of this year there have been seven purchases and shipments, ranging from about 30 to 70 head each of pure-bred

(*Continued on page 10.*)

HOW WE LEAD IN SWINE

Of cattle the world contains probably 475 million head, of which the United States has about one-seventh.

Of sheep the world contains approximately 500 million head, of which the United States has about one-tenth.

Of swine the world contains in the neighborhood of 180 million head, of which the United States contains considerably more than one-third.

In other words, swine are less numerous than either sheep or cattle in the world at large, but are more numerous than either in the United States.

Or the same classes may be considered in this way:

In cattle the United States is second to India, with three other countries, Russia, Brazil, and Argentina, following.

In sheep the United States is second to Australia, with Argentina, Russia, and New Zealand, the principal sheep-raising competitors.

In swine the United States is easily first, and this year has more hogs than her 10 nearest competitors all combined. The closest of these are Brazil, Germany, and Russia.

So the greater abundance of swine is perhaps the most noteworthy difference between the meat resources of the United States and most other countries.

LIVE STOCK ESTIMATES TO BE MORE FREQUENT AND DETAILED

Department Plans Important Services on Animal Resources

Number of Silos, Quantity of Feed, and Condition of Pastures to Be Shown; Returns Each Month from Counties

Up to this time the United States Department of Agriculture has issued a single estimate, in January of each year, showing how many head of the various kinds of live stock there are in the United States, and one estimate a year showing losses by disease. Now the whole system is to be changed. As soon as the machinery can be got in operation by the Bureau of Crop Estimates, there will be 12 live-stock estimates a year instead of 1. Instead of being made for the 48 States they will be made for the 3,000 agricultural counties in the United States. Instead of showing merely that there are so many horses, so many cattle, so many sheep, and so on, they will be made by age and sex classifications. That is, they will show what proportion is breeding stock, what proportion growing stock, and what proportion "marketable stuff." They will show quality as well as numbers—the proportion of pure-bred animals, of grade animals, and of scrubs.

A great deal more than that, even, is to be done under the new system. These surveys will show, besides actual live-stock figures, a great many things pertaining to and affecting the live-stock industry. They will show how many silos there are and what they contain, how much feed is on hand and in prospect, available for feeding to live stock; and the conditon of pastures and ranges throughout the United States. This showing will be made every month in the year.

Pasture Knowledge Vital

The last-mentioned item, that of the condition of pastures and ranges, is of much greater importance than might

appear at first blush. Leaving all of the others out of account for the moment, it should result in considerable increase of live-stock production as well as increased profits to a great many live-stock men. It will make possible quick shifts of live stock from sections where, for some reason, the pastures are short to other sections where for the time being the supply of pasturage is much greater than required by the live stock on hand.

Almost every year somewhere in the United States great numbers of cattle and sheep suffer for lack of pasture, fail to put on weight, and, if they do not die, are finally sold at a considerable loss to their owners. At the same time that this is going on, multiplied millions of dollars' worth of grass goes to waste in various other sections of the United States, because the supply of live stock on hand is not sufficient to eat it.

The average farmer who makes live stock a side line, or even one of his main lines, plays safe in the matter of pasture. The number of head of live stock he carries is the number he knows he can carry safely if conditions should happen to be such as to cut his pastures short. Very rarely does he carry the maximum number that would be possible with his pastures at their best or even at normal. It happens therefore when his pastures are exceptionally good and even when they are normally good, he has considerably more grass than is needed by his live stock.

With reliable monthly reports from the Government each month, showing just the condition of pastures everywhere, the feeder or range owner who finds himself short of grass should have little difficulty in distributing his cattle where there is abundance of grass, keeping his young and poor stuff from going to the slaughter pen before they are ready and generally making his business more profitable and more satisfactory.

More Important Work Planned

All of the other items in the new program of the Bureau of Crop Estimates are equally important, and some of them are vastly more so. The publication monthly of reliable figures showing the live-stock situation the country over should result practically in putting the live-stock business of the farmer on a more secure basis. The live-stock dealer always has the means of getting, on his own responsibility, a pretty accurate survey of the situation, but the farmer has no access to those sources of information. When the Government gives him the figures that are promised he will be on an equal footing with the buyer.

If there were ever any doubt as to the ability of the Department of Agriculture to obtain quickly and accurately country-wide information on present and prospective food supplies, the doubt has been dispelled. The war emergency demonstrated the matter very clearly. During the two war years, 1917 and 1918, the department estimated in advance of the planting season the acreage that farmers intended to plant to food crops. In both years these preplanting estimates came within 3 per cent of the final figures. In 1918, when for the first time it was possible to check up accurately on wheat, the department's estimates came within 2 per cent of the wheat production, as shown by the quantity used for seed and total receipts at mills and elevators as reported by the Grain Corporation of the Food Administration.

Such figures, authoritative and unbiased, are a prerequisite to the most intelligent program either of production or of marketing. They prevent the issuance of biased and misleading reports by speculators. They tend to stabilize prices by giving advance information of overproduction or underproduction. The certainty of supply resulting from dependable Government reports reduces the carrying risk of buyers and dealers, and enables them to pay better prices than would be possible otherwise. The Government reports enable transportation companies to estimate tonnage and to provide cars when and where they are needed. They give bankers the information necessary in providing funds for financing farmers in the production of their crops and, after harvest, for buyers and distributers of crops. They enable manufacturers to know, months in advance, what materials should be contracted for in order that farm machinery, equipment, and supplies may be made available without annoying and expensive delays.

There is just one class of men injured by the Government crop reports. They are the professional speculators who profit by the ignorance and uncertainty of others.

Those facts have long been realized as to the Government reports on field crops. Now they are to become equally true as to live stock.

To Show "Commercial Production"

A number of other things are to be done under the new program. One will be to show, not merely total production, but commercial production as well. That is, the crop reports will show not only how much of a given commodity is produced on the farms but how much leaves the farms and goes on the market. The price of anything is not determined by the quantity of that thing produced on the farm, consumed on the farm, or wasted on the farm, so much as by the marketable surplus—the portion that actually leaves the farm and becomes a factor in supply and demand in the open market.

Another important thing that will be a little longer in coming is the actual taking of a farm census every year instead of using as a basis of all figures the last preceding 10-year census. This is to be accomplished by using tax assessors as gatherers of basic farm figures. About 30 States have already passed laws requiring assessors to do this work, the returns to be made to the State commissioner of agriculture and to be checked up by the State field agent of the Bureau of Crop Estimates. In States where such laws have been passed, they are, for the most part, new and are not yet fully in effective operation. The Department of Agriculture expects, however, that similar laws will be passed in all other States and the plan put in complete effective operation throughout the United States within the next five years.

A great deal of work is being done, also looking to closer cooperation between the Federal Department of Agriculture and the State departments. Such cooperation results in combining the facilities of the two organizations and using them for the issuance of a single monthly crop report for the State instead of two. Cooperative agreements have been entered into in Wisconsin, Ohio, Illinois, Iowa, Nebraska, Missouri, Georgia, Alabama, North Carolina, West Virginia, Arkansas, Utah, and Idaho, and are under consideration in many other States.

TAHOE FOREST AREA REDUCED

The President has signed a proclamation eliminating approximately 49,239 acres from the Tahoe National Forest, Calif. and Nev. This action is based on the recommendation of the Secretary of Agriculture as the result of a detailed classification of the lands.

The eliminated lands have no value for national forest purposes. More than 15,000 acres eliminated are located on the steep canyon slope of the North Fork of the American River. Another large tract of approximately 10,000 acres lies along both sides of Yuba River, and much of the land is on the steep canyon walls of the river. About two-thirds of this tract has passed into private ownership under the mining laws. The remainder of the lands excluded are in smaller scattered tracts.

FRANCE NEEDS TO IMPORT MEAT AND LIVE ANIMALS

Department Men Report on Reconstruction of Agriculture

Shortage of Dairy Cattle is Serious; Sheep and Swine Also Are Required; Prices of Breeding Stock Are High

Though working under many disadvantages, including a shortage of horses and oxen, France is gradually reestablishing a substantial agriculture as one of the first steps in general reconstruction.

There is a serious need for dairy cattle, and a decided shortage of both sheep and swine. Prices of good breeding stock in all classes of domestic animals are high, in some instances three or four times their value before the war.

The foregoing conditions are described in a report on the live-stock, dairy, and meat situation in France received by the United States Department of Agriculture from its two European representatives, George A. Bell, of the Bureau of Animal Industry, and Turner Wright, of the Bureau of Markets. These men are jointly studying live stock in Europe, so that the United States Department of Agriculture and farmers in this country may keep closely in touch with international developments in supply and demand.

According to the report, the general policy of the French Government is to encourage the reestablishment and building up of French industries. This policy necessarily discourages importations from foreign countries and is aimed to maintain the exchange value of the franc. But at least until its agricultural resources are greatly improved France will import meat and dairy products and a considerable number of live animals.

Observations of the department's representatives in France include many facts of interest to producers of live-stock and dairy products in the United States.

Cows as Work Animals

Cattle, both oxen and cows, are being used extensively for work purposes, especially in the central and southern sections. In one district the number of cows used for work was twice as great as the number of both oxen and horses. The cows work in yokes, and those used for hauling are used also for breeding purposes. In many instances they are also milked.

There is a general shortage of horsepower for farm work, but army horses and mules are gradually being sold for civilian purposes, and it is estimated that eventually about 800,000 will be returned from the various armies. The farm tractor is also being used to a greater extent than before the war.

Increase in Young Cattle

French farmers already have taken steps to increase the meat and milk supply, as evidenced by the large numbers of young animals seen on many farms visited in various parts of France. A striking feature of the cattle situation was the large number of calves and heifers on farms of peasants as well as on those of the large landowners. Most of the animals were in good flesh. In many sections there is a larger percentage of grassland than before the war, due chiefly to the shortage of labor necessary to care for cultivating crops. The extra pasturage is expected to improve live-stock conditions by furnishing grass for this summer, and some of the additional grassland will provide more than the usual amount of hay for winter use. Grain is not fed so extensively to cattle in France as in the United States and consequently does not play such an important part in the production of cattle and dairy products.

LIVE-STOCK SITUATION ABROAD

This is the first in a series of articles describing observations on the live-stock situation in foreign countries by representatives of the United States Department of Agriculture.

Other countries will be treated in succeeding articles to be published in the Weekly News Letter.

Continued Decrease in Sheep

The number of sheep in France was decreasing from year to year even before the war, and during the last five years the number fell from about 16 million to 9½ million. This average decline of more than a million sheep a year is about four times as fast as in prewar years.

The slaughter of sheep at a principal abattoir in Paris was less in 1918 than in 1917, however, and available figures for 1919 show that the slaughter this year is only about half that of last year. Such a condition indicates either that farmers are holding their sheep, notwithstanding the prevailing high prices, or else that flocks are nearly exhausted. The latter conclusion, however, seems improbable since the last estimate in June, 1918, gave the total as about 9½ million.

Pork Production Depends on Feed

The decrease in the number of swine during the first two years of the war became more gradual after 1916, and now apparently has stopped. A continuation of present high prices, combined with good grain and potato crops, according to the report, would stimulate production of swine.

Hogs at market and also on farms were thinner in flesh than most hogs usually seen in the United States. The hogs of France are of a bacon type, since fat hogs do not meet the popular demand, yet it appears that pork production has been handicapped through shortage of grain and potatoes. The shortage of feed also has caused the marketing of pigs at a lighter weight than usual. As in the case of sheep, the slaughter of hogs this year is considerably less than the corresponding period of 1918, indicating that farmers are building up their herds.

Chickens in France

Although casual observation in many parts of France indicate that the number of chickens per capita was at least as plentiful as in the United States, there was a general complaint of scarcity. Dressed chickens of average size were retailing in the spring at prices equivalent in American currency to about $3 apiece, and eggs from 70 cents to more than $1 a dozen.

Few Restrictions on Imports

Aside from a few necessary regulations, such as a health certificate, importations of live stock are reasonably free from official restriction. Horses, cattle, sheep, and swine are now admitted to France without tax, and private citizens are allowed to make importations. The ministry of agriculture, the report states, realizes the need for live stock and live-stock products, and it is believed that only the regulations necessary to guard against disease will be made.

The French Government is giving assistance in importing several thousand head of cattle which were to be obtained from the United States, Canada, and Switzerland, according to the plans at the time of the report. Importations of sheep and swine may occur to a slight extent, but the tendency will be rather to import the meat, fat, and wool.

Although the condensed milk imported into France during the war was used largely for army consumption, there has been a noticeable increase lately in the

number of stores selling it and hotels serving it. From all indications France will continue to import large quantities of condensed milk until the supply of fresh milk has increased materially.

"The large number of yearlings and 2-year-old heifers seen on our visits to farms in different parts of France," the report states, "would indicate that with favorable conditions the production of milk should approach something like the prewar basis within the next two years."

WOOL MACHINERY MORE ACTIVE

An increase in the amount of wool machinery in operation June 1, 1919, as compared with May 1, is shown by the active and idle wool machinery report just issued by the Bureau of Markets, Department of Agriculture. The largest increase in active machinery was in the case of worsted combs, which show a gain of about 10 per cent, while worsted spindles gained about 5 per cent and wide looms 7 per cent, compared with May. More machines were reported working on double shift than in any other month of this year.

Machinery in operation June 1 of this year, by groups in percentages, were: Wide looms, 70.4; narrow looms, 73.4; carpet and rug looms, 55.5; woolen cards, 84.6; worsted combs, 87.2; woolen spindles, 84.8; and worsted spindles, 78.9.

Machines on Government orders were less than 1 per cent in every group, except woolen spindles, where the percentage was 1.1.

IMPORTANCE OF CLEANLINESS

Everything about a poultry house should be kept reasonably clean. As a rule droppings should be removed daily, for the accumulation of excrement harbors parasites, contaminates the air, and breeds contagion. After the dropping boards have been cleaned, they should be sprinkled with road dust, coal ashes, land plaster, or air-slaked lime to absorb the liquid excrement. Nests in which straw or other similar material is used should be cleaned out and new straw put in about once every three or four weeks, or oftener if it becomes damp or dirty.

The quarters should be thoroughly whitewashed at least once a year, late in summer or early in the fall. The whitewash can be made by slaking lime in boiling water and then thinning to the proper consistency for applying. The addition of 4 ounces of carbolic acid to each gallon of whitewash will increase its disinfecting power. The runs should be plowed occasionally in order to bury the accumulated droppings and also to turn up fresh soil.

UTAH FINDS TUBERCULOSIS IN CONSIGNMENT OF CATTLE

Animals Show Disease on Retest Under United States Supervision

Shipment Originated in Illinois, from Which Three Lots of Diseased Stock Were Sent Previously to Tennessee

Upon evidence obtained by the State Live-Stock Board of Utah and the Bureau of Animal Industry of the United States Department of Agriculture, shipments of dairy and breeding cattle from Illinois are again under investigation. Of 33 cattle shipped late in March of this year from St. Charles, Ill., to Ogden, Utah, 16 of the animals were found, on a retest, to be tuberculous. St. Charles is near Elgin, Ill., from which three shipments of tuberculous cattle were made to Tennessee, as recently announced by the Department of Agriculture. In both the Tennessee and Utah cases legal action is already in progress.

Interstate shipments of diseased animals are matters in which the Federal Government is essentially interested, and every means possible is being employed to prevent their occurrence.

Health Certificates from Illinois

Following its policy of depending largely on intelligent public opinion as an important factor in the control of animal diseases, the Bureau of Animal Industry reviews the facts in the Utah shipment as follows: The carload of 33 cattle was purchased at St. Charles, Ill., late in March, and was certified as having been inspected and tuberculin tested by a local veterinarian under supervision of the chief veterinarian of Illinois. The cattle arrived in Utah, at the Ogden stockyards, early in April, and after 62 days in quarantine were retested by a Utah veterinarian under the supervision of a Bureau of Animal Industry inspector.

Sixteen of the cattle were found to be tuberculous. The State of Utah has a regulation that cattle entering the State from elsewhere do not become Utah cattle until 120 days after their arrival. This regulation has an important bearing on the case, because the State indemnity money for the slaughter of tuberculous cattle depends on their being Utah cattle.

Why Retest is Desirable

The Bureau of Animal Industry points out that a retest of cattle purchased from another State is nearly always desirable, since such a retest is a check on the accuracy and the honesty with which the first test is made. A period of at least 60 days should elapse between the two tests to allow the temporary immunity conferred by the first test to pass away.

The new Federal regulations on interstate shipment of live stock went into effect July 1, and are expected to reduce traffic in diseased animals. The shipment to Utah was made and received before that time, and therefore was not subject to the restrictions now in force. The Bureau of Animal Industry also has received in the meantime expressions of regret from veterinary officials of Illinois, who pledge themselves to cooperate with the Federal Government in stamping out traffic in diseased live stock.

IT'S EASY TO PREVENT DAMAGE BY RICE MOTH

To prevent damage by the rice moth in warehouses holding chocolate, rice, dried fruits, or hardtack is not a difficult or an expensive task, according to United States Department of Agriculture entomologists. When the warehouse is empty, clean out all dust and trash; wash the walls with creosote or common salt water, using a stiff brush to get into all the cracks. Clean the entire plant, including the machinery, thoroughly, then fumigate with hydrocyanic-acid gas. Small plants may use carbon disulphid or sulphur dioxid; or, if the building can be heated to 120° or 130° F. for several hours, the same results may be accomplished. No secondhand bags should be used for these food products without first fumigating them.

Careful inspection occasionally and thorough treatment when necessary by importers and warehousemen in these food products will prevent the rice moth becoming a serious pest. Results of investigations conducted by the United States Department of Agriculture on this moth have been published in Bulletin 783, "The Rice Moth."

The double-headed barrel is the most satisfactory package for new potatoes. The heads should be secured by "headliners." The barrel used should conform to the specifications of the United States standard barrel. Barrels which are loaded on end carry better than those loaded on their sides.

Destruction of grasshopper eggs by fall plowing, disking, or harrowing is recommended where practicable.

BOYS TO STUDY MECHANICS IN FIRST JUNIOR COURSE

Department to Cooperate in Innovation at Mississippi College

Subjects Range from Simple Tasks to Those That May Mean Success or Failure in Farming

The first college course ever given in junior farm mechanics is to be put on for boys' club members by Mississippi Agricultural College, August 18 to August 27. Club boys from over the State will be assembled at the college and will be taught, with demonstrations, the right way to do the things that have to be done regularly on the farm with machinery, implements, and equipment of one kind or another. The United States Department of Agriculture, through its States Relations Service, will cooperate in the new venture.

The subjects will range all the way from tying a knot in a rope to wiring a gasoline engine for action—one of which, taking it by and large, is just about as important as the other and about as little understood. A proper knot is frequently a tremendously important thing, and relatively few people know how to tie one properly under all circumstances. Many times, at many places, human life has been lost because the man on the job did not know how to tie the right kind of knot. Every day, on multiplied thousands of farms, a great deal of trouble is caused and much time and money lost because somebody does not know how to tie a good knot at the right time.

There are scores of other comparatively simple mechanical operations that are just as important and just as little understood by the general run of people. It means something to have these things, as well as the more complicated ones, taught to the boys who are now taking an interest in the farms and who, in a few years, will have charge of them. From these boys the knowledge will filter to other boys and to farm hands and will ultimately help a great deal toward better farming.

More Attention to Implements

"I have gone over this course very carefully, and I think it one of the most practical that I have ever seen given the boys." This statement was made recently by I. W. Hill, of the United States Department of Agriculture, assistant in charge of boys' club work in the Office of Extension Work in the South. "The boys in our territory," he continued, "need just such a course more than anything else, it strikes me. The time has come in the history of our agriculture that more attention must be given to improved farming implements. In the South, especially, the farmer has relied too much on hand labor. If such a course as this be given at the colleges in the near future a great many more improved implements will be used. So far as I know this is the first course of junior mechanics given in this country, and I'm thinking about going down and taking it myself."

Beginning with rope work, including the methods of splicing ropes and tying 12 kinds of knots, the course of instruction will proceed to other comparatively simple but essential operations. Some of these have to do with fencing, a thing that, among farm operations, is probably most frequently done poorly. Instruction in fencing will include selection of materials, setting corner posts, placing braces, stretching woven wire, and making gates.

Instruction will be given in how to lace belts, another simple operation that probably not one man out of a hundred knows how to do properly. Other miscellaneous operations will include the grinding of tools, soldering, cutting and fitting pipe, using the level for terracing and drainage, operating power-washing machines, and installing home waterworks.

Instruction Given in Plowing

Instruction in the use and and adjustment of machinery will include practically all machines and implements commonly used on the farm. As to plows, the boys will be given instruction as to walking plows, sulky, gang, engine, and disk plows, with attention to types, construction, adjustment of hitching, adjustment of share, and the various other things that go to make up efficient plowing. Harrows, packers, and pulverizers will be studied as to types and uses, and planter instructions will be given for corn and cotton, with practical tests of the various types. Cultivators will be explained and their uses demonstrated. The same will be done with haying machinery, including mowers, rakes, and loaders, and with fertilizer spreaders and distributers.

Proceeding to still more complicated mechanical operations, instruction will be given as to the various types of gas engines, their operation and nomenclature. Finally the boys will be instructed in the use of the tractor, both as to operation under normal conditions and adjustment under difficulties.

C. A. Cobb, assistant director of extension at the Mississippi Agricultural College, recently wrote to the Department of Agriculture that he expects to have from 200 to 300 boys taking the course. Arrangements have been made with the athletic department of the college and with the Young Men's Christian Association for giving the boys the necessary recreation during the 10-day period and especially attractive housing arrangements have been made. The entire agricultural engineering department and boys' club department of the college will devote the 10 days exclusively to making the course a success.

"We have so planned the course," says Mr. Cobb, "that it fits directly into certain definite plans agreed upon by the extension force to be carried out during the remainder of this year, namely, a drive for hog fencing, better gates, and improved implements properly handled and cared for."

INSECT HELPS CONTROL OTHER INSECTS

A European parasitic fly that may become of far-reaching importance in the control of the gypsy moth and brown-tail moth and certain other serious pests of similar character is being multiplied from importations of this new insect enemy. A report of the work with the parasite—known as *Compsilura concinnata*—has just been made by entomologists of the United States Department of Agriculture.

This report shows that this parasite has reduced the damage done by the gypsy moth and the brown-tail moth in the New England States, where they were so abundant and destructive that they ate the leaves off enormous areas of forest and shade trees every year. It has been found that *Compsilura* also aids in the control of other insect pests.

The white-marked tussock moth, a serious pest in the New England States a few years ago, has practically disappeared since *Compsilura* has become established. The cabbage worm, still a serious pest, has been lessened in some sections. Celery worms are not as common as formerly, and the fall webworm is scarcely noticed in the Northeastern States now.

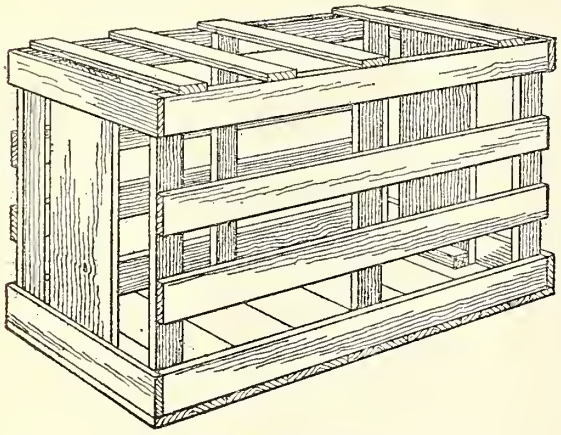
The entomologists do not claim that this parasite is the sole cause of this reduction, but it has proved an important natural enemy to all of them. It is thought that *Compsilura* may become one of the most important economic parasites in this country. The results of the study of this parasite have been issued in Bulletin 766 of the United States Department of Agriculture.

Preventive and remedial measures for swarming permit the beekeeper to operate a series of apiaries in different locations without the necessity of an attendant in each during the swarming season.

How to Make a Practical Hog Crate Strong Enough to Be Shipped Safely

Farmers who raise pure-bred hogs need practical and strong hog crates in which to ship the animals. Specialists of the United States Department of Agriculture recommend a crate in which the side slats are nailed on the outside, where they are just as secure and safe, and by which the same amount of lumber will give 2 inches more space than if the slats were placed on the inside, as is commonly practiced.

The front of the crate is closed by putting in a board standing endwise instead of nailing slats crosswise, the commonly accepted procedure. The former method is better because the end can be opened readily and the hog can walk out with ease instead of being forced to back out, as in the ordinary crate. In addition, when the slats are nailed crosswise, especially when the crate is used for old hogs, they may be pushed off or broken into while in transit, and sometimes allow the hogs to escape.



Build the crate to fit the hog.

For a properly constructed crate the sides should be made first, and the floor, top, and ends built around them. The floor should be laid crosswise, which will make the crate stronger. Only good, strong boards should be used. One 12-inch board or two 8-inch boards are sufficient for the ends. A block should be nailed to the floor 1 inch from each end to keep the end boards from slipping inward. The crate should be built to fit the hog to be shipped and should be large enough for comfort. A well-built crate may prevent serious injury to the hog in transit. A crate of suitable size for a hog weighing from 250 to 300 pounds is 2 feet wide, 4 feet 8 inches long, and 2 feet 8 inches high.

In building the sides of the crate it is essential to use nails sufficiently long to allow one-fourth-inch clinch, the nails being bent crosswise of the grain of the wood. The nails in the end boards are not clinched and the nail heads are left to protrude enough so that the nails can be removed easily with a claw hammer. The usual top cross board just above the animal's hind quarters is omitted.

BUSHEL MEASURE MORE STANDARD THAN SACK

Many growers, particularly in the territory where field seeds and crops are sold commonly by the sack ask why the United States Department of Agriculture estimates crop production by bushel measure instead of by sack or hundredweight. The reason is that 90,000,000 people in 40 States of the Union think, talk, and measure by bushels, the bushel being the standard unit of measure throughout this area. The bushel measure is definite, and Congress and the States have stabilized it and specified the number of pounds of different commodities legally constituting a bushel. The census figures of crop production have all been reduced to bushels for all commodities for which legal weights have been used and doubtless will be used until a different unit of measure has been adopted.

Sacks Not Standard

A sack—the unit of measure in some sections—is not definite and can not be made so, except by legal enactment, standardizing the volume and then, in turn, standardizing the weight per volume for the different commodities. Oranges and apples are thought about and talked about in boxes, dried fruits in pounds or tons, and it is doubtful if custom will permit of a material change. In handling green fruits in large quantities the ton is the most practical unit of measure, but for small quantities the lug box is in general use. As the lug box varies in size from 30 to 40 and 50 to 60 pounds, there is more or less confusion unless market quotations are made on the basis of lug boxes of specified sizes.

The cental or hundredweight appears to be the most practical unit of measure and is coming into general use in the purchase and sale of grains and vegetables. If the bulk handling of grain becomes general, as now seems likely, the sack will disappear, and the cental or bushel will take its place.

Bushel Weights Used.

The following weights per bushel are used by the United States Department of Agriculture in all estimates of crop production:

Apples, 48 pounds; beans (dried), 60 pounds; clover seed, 60 pounds; corn (shelled), 56 pounds; corn on cob, 70 pounds; oats, 32 pounds; peaches, 48 pounds; pears, 48 pounds; rye, 56 pounds; tomatoes, 56 pounds; grain sorghun, 56 pounds; onions, 57 pounds; peanuts, 22 pounds; potatoes, 60 pounds; sweet potatoes, 56 pounds; timothy seed, 45 pounds; wheat, 60 pounds.

NEW PUBLICATIONS

The following publications were issued by the United States Department of Agriculture during the week ended July 19, 1919:

The Relation of the Shrinkage and Strength Properties of Wood to Its Specific Gravity. (Professional Paper.) Department Bulletin 676.

A Study of Compsilura Concinnata, an Imported Tachinid Parasite of the Gipsy Moth and the Brown-Tail Moth. (Professional Paper.) Department Bulletin 766.

The Rice Moth. (Professional Paper.) Department Bulletin 783.

Commercial Comb-Honey Production. Farmers' Bulletin 1039.

Suggestions for the Marketing of Cottage Cheese. Departmental Circular 1.

Out-of-Door Playgrounds of the San Isabel National Forest. Department Circular 5.

How Hard Red Winter Wheat is Grading Under Federal Standards. S. R. A.—Markets 54.

Improved Apparatus for Detecting Sulphured Grain. S. R. A.—Markets 55.

Copies of these publications may be obtained on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

CALIFORNIA FRUIT IN FILM

Why the people of the Eastern States always associate the name of California with the idea of something good to eat is shown in a moving-picture film recently issued by the United States Department of Agriculture. This film shows many phases of the fruit-growing industry of

California—from the tree to the car—and it has some scenes remarkable as much for their beauty as for what they teach.

Peaches, apricots, prunes, and cherries play the star parts in this film of fruitfulness. Many a person is likely to learn through it that apricots don't grow in a box, but on trees, like peaches; that they are picked in the same way, and then are spread out to dry in the warm sun of the Pacific coast.

DETERMINING THE STRENGTH OF WOOD BY ITS DENSITY

A comparatively simple method of estimating the strength properties of timber from the density, or specific gravity, is set forth in Bulletin 676 of the Department of Agriculture, "The relation of the shrinkage and strength properties of wood to its specific gravity," which has just been issued. By the analysis of over 200,000 tests on wood of many species, the Forest Products Laboratory of the Forest Service has definitely established the relations between the specific gravity of wood and its strength properties. Equations for these relations have been worked out and have been reduced to such simple form that they may be solved by arithmetic and without the use of higher mathematics.

In selecting timber for any given purpose, in comparing various species of wood, in estimating the properties of any particular wood, the equations should be found useful. To supplement the equations in determining in what way a species is exceptional and to what use it is best adapted, there is a tabulation showing the variation from the average equation of each property of the various species tested. This variation from the average equation is often what determines the usefulness of a species for a special purpose.

LOCATING THE POULTRY HOUSE

In locating a poultry house it is best to select an elevation having a natural drainage away from the building, for damp ground means cold ground. If the house can be built in the lee of a windbreak or a hill, or in front of farm buildings, so much the better. A dry, porous soil, such as sandy or gravelly loam, is preferable to a clay soil, for the former is more easily kept in a sanitary condition. If it is impracticable to select a soil that is naturally dry, the soil should be made dry by thorough underdrainage. A purely sandy soil should not be selected, for a soil not good enough to support plant life is unfit for poultry.

As sunlight and warmth are essential to success, the buildings should face the south; other things being equal, they will be warmer and drier. When a direct southern exposure can not be obtained a southeastern is preferable to a southwestern exposure, for fowls seem to prefer morning to afternoon sun. A gentle slope facing the south is the most suitable.

If crates are used in potato shipping they should be so made as to protect the potatoes from too rapid evaporation and consequent shriveling.

Loss Small in Properly Stored Potatoes; Plans for Good Houses Offered Free

Potatoes properly stored should not sustain a loss throughout the winter season of more than 5 per cent, and under exceptionally good conditions not more than 3 or 4 per cent, according to specialists of the United States Department of Agriculture. The maximum return from the crop after it is produced depends on the care with which the potatoes are harvested, stored, graded, sacked, and the ability of the grower to sell at the most advantageous time.

Approximately one-third of the main potato crop is marketed at harvest time, and the remainder is stored as a reserve supply for winter and spring. It is physically impossible, as well as economically undesirable, to attempt to market the entire crop in the autumn, and the only way in which potatoes can be handled successfully, so as to insure a uniform supply, is to provide sufficient storage on the farm or at the shipping station for from 65 to 75 per cent of the crop.

Various types of storage places are now in use, ranging from pits or cheaply-constructed dugouts to large, substantially-built storage houses. Plans for the construction of storage houses are given in the department's Farmers' Bulletin 847.

Moderate Temperature Necessary

For successful storage, the tubers must be protected from extremes of cold and heat; a temperature of from 35° to 40° F. is considered satisfactory. Sufficient ventilation must be provided to remove foul air and excessive moisture. The storage house must be so constructed as to make it possible to exclude the light, as the table quality of potatoes quickly deteriorates in the light.

The tubers should be dry and reasonably free from dirt when put into storage; an excess of moisture or soil increases the amount of heat in newly stored potatoes. The soil tends to fill up the spaces between the tubers, thus cutting off air circulation and helping to retain heat that would otherwise escape. All diseased, badly cut, or bruised tubers should be removed from the crop before putting it into storage.

Heavier Shrinkage in Large Piles

It is a common practice for commercial growers and shippers to store potatoes in bins to a depth of 10 to 15 feet. This is almost certain to entail a much heavier shrinkage loss than when stored to a depth of not more than 6 feet. The heavier shrinkage is the result of the greater amount of heat generated by a large pile of potatoes, which results in a higher amount of moisture loss as well as a heavier loss from decay, as heat and moisture both help to develop organisms causing tuber rots. Frequently the losses sustained when the potatoes are stored under these conditions reach 25 per cent, and where rigid care has not been exercised to remove all diseased tubers before storing the crop the loss is even greater. It is advisable, therefore, to pile the potatoes not greater than 5 or 6 feet deep, and the floor dimensions of the bin should not be greater than 12 by 12 feet, unless provided with a series of ventilating shafts or division walls for the escape of moisture and heat.

Many a fine field of corn in the South Atlantic States is broken off by heavy winds during the later growing season. Examination will show that the stalks had been weakened by insects boring into them. The damage was done by a pale, dark-spotted caterpillar, the larger cornstalk borer.

Although grasshoppers are not usually noticed by the farmer until they have reached a considerable size, they begin to injure his crops immediately upon hatching from the egg. They should be detected and combated, therefore, while young and small, so that time, labor, and material, as well as crops, may be saved.

Weekly News Letter

Published every Wednesday by the

Office of Information, U. S. Department of Agriculture,
Harlan Smith, Assistant in Charge

The WEEKLY NEWS LETTER is the official publication of the Department of Agriculture. Its purpose is to report the results of research and investigation in the department. It is intended for department workers and for official cooperators, to whom it is sent free, and as a news service to the press. The limited funds available for publishing the NEWS LETTER make it impossible to extend its free distribution beyond these groups. Others can obtain it from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the rate of 50 cents a year. Stamps can not be accepted in payment.

The News Letter is a news service, and editors are invited to reprint from it with or without credit.

MISSOURI POULTRY MAN "SEES" AND WORKS WITH HIS HANDS

Missouri, which won the title of leading poultry State of the Union through its production of $76,000,000 worth of fowls and eggs last year, also boasts a successful poultry raiser who "sees with his hands." He is blind, but he refuses to consider his lack of sight a handicap.

The blind poultry man is O. E. Jones, secretary of the Jefferson City Association for the Blind, at Jefferson City. He has constructed in a barren, rough back yard a two-section, two-story poultry house, 12 by 4 by 6 feet in dimension, equipped with a stairway, feed hoppers, removable frames covered with muslin and wire, roosts, dropping boards, and trap nests. The roof is made of two-hinged doors covered with tar paper.

In the west half of the house 4 single-comb black Minorcas live, work, and play. In the upper half of the east section are 8 broilers, and in the lower half is a hen with 18 healthy chicks. Because there soon were more chicks than the original house would quarter, the blind owner constructed, unaided, a brood coop equipped with a wire-covered run for the comfort of the mother hen. This poultryman is a firm believer in keeping the brood hen confined, and if careless poultry men, the country over, who turn their hens loose with the chicks would compare losses with their blind associate, they doubtless would be convinced of the practicability of his methods.

One-half of the floor space in the coop is a sand compartment, equipped with chick feeders made from cigar boxes. The doors are of the sliding variety, and at night provide for the entrance of fresh air through wire panels; the top is hinged and covered with roofing paper, while the coop is lined with roofing paper, to avoid drafts. Altogether, this coop is a remarkable tribute to persistency and patience.

This poultry man follows a unique system of recording the eggs produced. He uses a small piece of wire screening of ¼-inch mesh, which is tacked to a board. Vertically he uses one, two, three, and four tacks, each representing a particular hen. Horizontally, after each number he records each hen's production; that is, if hen No. 1 lays to-day, one tack is placed in the first square and so on. At the end of the month all tacks are removed, records are recorded, and the process is repeated.

Mr. Jones is striving to organize a poultry club at his institution, and looks forward some day to operating a poultry plant of several hundred hens. He became interested in the pursuit at an extension meeting for poultry raisers conducted by specialists of the United States Department of Agriculture and the State college of agriculture, who worked with the Cole County Farm Bureau.

FIGHT ON CATTLE TICK CONTINUES IN FLORIDA

Following a conference in Washington between Dr. W. F. Blackman, of Jacksonville, member of the Florida State Live-Stock Sanitary Board, and officials of the Bureau of Animal Industry, United States Department of Agriculture, it is announced by the department that there will be no interruption in its cooperative work with the State authorities to eradicate the cattle fever tick. Despite the recent failure in the Florida Legislature of a proposed State-wide compulsory tick-eradication law, the Bureau of Animal Industry, as in the past, has allotted a liberal quota of funds for anti-tick work in Florida, and the Federal work will continue on the plans that have been followed by Dr. E. M. Nighbert, the bureau's inspector in charge in Florida.

It is also announced that the Federal funds will be expended where they will do the most good—in counties where the people express a desire for tick eradication and show a disposition to cooperate to the fullest extent in active work. It is regarded as probable that most work will be done in the southern part of the State, where cattle interests are larger and where the necessity for driving out the tick seems to have been most appreciated. An entering wedge was made in this section by the work that resulted in the release of Lake and Orange Counties from Federal quarantine, and adjoining counties, having seen the benefits at close range, are said to be ready for thorough campaigns against the cattle parasite.

The bureau insists upon the systematic dipping every 14 days of all cattle in a county receiving the benefits of Federal funds. Fourteen-day dipping is the one plan that has proved successful in other States, and the only plan upon which credence or approval is placed. It takes account of the life history of the tick in such a way that reproduction is prevented.

FAILURE TO DIP TICK REPLACES QUARANTINE

The Federal quarantine against the cattle-fever tick will be replaced August 1, 1919, on Columbus County, N. C., in accordance with a notice that has been issued by the United States Department of Agriculture. This action means that the interstate movement of cattle from Columbus County shall be made only in accordance with the regulations of the Secretary of Agriculture to prevent the spread of cattle fever, which is carried by the tick.

Columbus County was released from Federal quarantine on December 1, 1918, but the county officials, the department states, have failed to provide the cooperation necessary to clean up the small amount of infestation that remained when the quarantine was removed. It is also stated that because of the failure to complete the work of tick eradication in this county the ticks have multiplied to a large degree this season and are likely to prove a menace to other counties which have engaged in eradication work or are preparing to do so. The quarantine will remain on Columbus County, it is stated, until the ticks are cleaned out sufficiently to remove the danger of spreading the infestation.

Some beekeepers find it necessary to fumigate comb honey to prevent damage by the larvæ of the wax moth. For this purpose fumes of sulphur or disulphid of carbon may be used. If disulphid of carbon is used, great care should be taken not to bring it near a flame, as it is highly inflammable.

Comb honey that is to be sent to a distant market should be shipped before cold weather, since the combs become extremely fragile when cold.

TREATED FENCE POSTS PAY; BARRIERS BUILT TO ENDURE

Tests Show Economy of Coating Wood with Creosote.

Black Gum and Cypress Give Best Results in Experiments in Louisiana; Treatment Keeps Out Rot Organisms

Ten years' use of creosoted fence posts of different kinds of wood has brought out interesting results, valuable for the guidance of farmers who are considering treating some of the common woods for this purpose.

In cooperation with the Experiment Station, College of Agriculture of Louisiana, the Forest Service, United States Department of Agriculture, in 1908 treated small round fence posts of six different kinds of wood at the North Louisiana Station at Calhoun, Ouachita Parish. The open-tank method of applying hot and cold baths of ceresote was used. The posts, from 3 to 5 inches in top diameter, had been cut several months ahead, and open-piled in a dry situation to season. A careful examination of the condition of the posts was made in 1918.

Black Gum and Cypress Lead

Of all the kinds of wood treated, black gum gave the highest record, with cypress only one point lower. Out of every hundred black gum posts treated and set, 97 remained sound, 2 were found with some defect, and 1 had to be removed on account of wood decay. Round cypress showed almost as good results; two in every hunded had to be removed because of decay. Tupelo gum and sweet gum ranked next, with 89 and 87 posts sound, 6 and 11 posts defective, and 5 and 2, respectively, removed on account of defect. Sap pine (short-leaf and loblolly) showed 73 to be sound, 15 slightly defective, 9 badly defective, and 3 removed on account of decay. Bay (probably red or white bay) made the poorest showing, with 68 sound, 15 defective, and 17 removed.

The interlocked or twisted fiber of the gums, particularly black gum, which makes them difficult to split, retards cracking or checking in the wood and thus protects the interior of the posts from the early entrance of wood-rotting fungi. Creosoting round cypress preserves the sapwood from the early decay which otherwise normally occurs and thus makes it better for posts. Sap shortleaf and loblolly pines, as shown by the records of this and other tests, are good woods for use as treated posts. Only 3 removed and 9 others defective in every hundred is not a poor showing after 10 years' use in the ground. The relatively poor showing of bay is probably accounted for by the deep and wide checking which developed in the wood, giving free access to wood-decaying fungi beneath the zone of penetration of the preservative.

For better comparison the results are given below in tabular form. They are based upon the number of fence posts found at the time of the examination. A few posts in each test were missing, because of their removal for exhibition purposes, changes in feuce line, and possibly other causes.

Condition of Fence Posts after 10 Years of Service

(Per 100 posts set in the ground.)

Kind of tree.	Sound.	Partly defective.	Badly defective.	Removed on account of decay.
Black gum	97	0	2	1
Cypress	96	0	2	2
Tupelo gum	88	4	3	5
Sweet gum	87	4	7	2
Sap pine (short-leaf and loblolly)	73	15	9	3
Bay	68	2	13	17

Maintenance Cost Reduced

The preservative used in the test was coal-tar creosote, a product obtained by distillation from ordinary coal tar. Coal tar is sometimes used in the crude state for treating wood, although it is much thicker at ordinary temperatures and penetrates less readily into the wood than creosote. A comparison of the annual costs of maintaining three fences built with posts of untreated sap pine, untreated white or post oak, and treated sap pine, respectively, indicates a saving of from $6 to $24 per mile in favor of the treated pine.

The following estimate is believed to be representative of the costs over a considerable part of the region where post oak and yellow pine occur:

Relative Economy of Treated and Untreated Fence Posts

	Untreated sap pine.	Untreated white or post oak.	Creosoted sap pine.
Cost of post	$0.05	$0.12	$0.07
Cost of treatment	.....	.....	.18
Cost of setting	.15	.15	.15
Total cost of post in ground	.20	.27	.40
Average life of post, in years	2	6	15
Average yearly cost	$0.10	$0.04½	$0.02½
Average yearly cost of 1 mile of fence (posts 1 rod apart)	32.00	14.40	8.00

Although more expensive at the outset, creosoted posts are generally more economical to use than many kinds of untreated, short-lived woods, because of their much greater lasting qualities. The exceptions would be in remote localities with cheap wood and labor and where it would be expensive to obtain creosote. The large saving in the replacement charges, which ordinarily mount up so high in maintaining a fence, and the use of cheap and inferior kinds of wood in the first place, much more than offset the increased cost of thorough treatment with creosote. Treated posts are a good investment, and their use is a sign of sound judgment in farm management.

CIVIL-SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for specialist in cotton classing, for men only, on August 19, 1919, to fill three vacancies in the Bureau of Markets, Department of Agriculture, and future vacancies requiring similar qualifications, at entrance salaries ranging from $2,400 to $3,600 a year. Applicants should apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Assistant in graiu standardization, for both men and women, on August 20, 1919. Five vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the field, at salaries ranging from $900 to $1,800 a year, will be filled from this examination.

Cotton classer's helper, for men only, on August 20, 1919, to fill vacancies in the Bureau of Markets, Department of Agriculture, for duty in Washington, D. C., or in the feld, at $600 to $1,200 a year.

Applicants for the above examinations should apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washingtou, D. C.

Assistant in agricultural technology, qualified as instrument maker, for men only. Vacancies in the Bureau of Markets, Department of Agriculture, and other branches of the Departmental Service in Washington, D. C., at entrance salaries ranging from $1,200 to $1,800 a year, will be filled from this examination. Date of examination., August 19, 1919. Applicants should apply for Forms 304 and 2029, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.

Agricultural Exhibits Back from France; Army Keeps One Set for Further Use

Three of the four sets of agricultural exhibits that were sent to France by the United States Department of Agriculture and exhibited at American Army camps, in cooperation with the Army educational service and the War Work Council of the Young Men's Christian Association, have been returned to this country or are en route here. One set was left in France, at the request of Gen. Pershing, for further exhibition among the soldiers of the American forces.

The four Department of Agriculture representatives who conducted the exhibits in France also have returned or are on their way to this country. They reported that the exhibits excited much interest among the American soldiers, despite the dominating interest in the arrival for sailing orders, and that many of them probably received a new conception of the possibilities of American agriculture, as well as of its problems and of how the Federal and State agricultural agencies can aid in their solution, and that hundreds of veterans have thus been aided to approach farming with a better idea of what they will have to combat and of how to do it.

Much Interest Among Civilians

The exhibits were sent to Europe primarily for the benefit and instruction of the American soldiers, but great interest was manifested by the French public. The French attendance became so large at one point that it was thought necessary to duplicate the labels in the French language. French, British, and Belgian agricultural representatives who visited the exhibits asked that they be sent to their countries for display to civilians. Exhibits were made at Beaune, in connection with the university of the American Expeditionary Forces; Bordeaux, where a large number of soldiers were waiting for embarkation and where the Bordeaux fair was being held; and Le Mans, where a fair was held under American military direction. Exhibits at Brest and other points were prevented by lack of necessary space or quarters.

"There was a continual crowd throughout," says a report from the exhibit at Bordeaux. "Hundreds of Americans and thousands of French attended. The exhibit also was looked over by many others, including men from Tunis and Algeria. While the exhibit was of much interest to our soldiers, the greater interest was evidenced by the French and English. A number of American soldiers and two Frenchmen served as interpreters, the Frenchman being kept especially busy with the poultry-section models, it seemingly being a hard matter for the French to 'compre' the trap nest. However, it was fingered and photographed and drawings and measurements were made to a 'fare-you-well.' A number of Frenchmen expressed the hope that the French Government would have the United States send over an exhibit designed to show the latest kinks in our agricultural practices."

Wanted to Plant Corn

At the same place of exhibit the French visitors were so much interested in the display of the great American crop, Indian corn, that they began to pick grains from the cobs, with the intention of planting them. At the end of the day only the cobs were left. This caused a recommendation, "If any more foreign exhibits are made, samples of corn should be handy for distribution, otherwise the exhibit will not last unless under guard or some means of protection."

Publications of the Department of Agriculture were exhibited on panels, and soldiers acted on the invitation to select those they desired to receive and turn in requests for them. Models of American farm homes aroused great attention—possibly because all of the soldiers had turned their thoughts toward home.

The exhibits consisted of material representing the work of the following bureaus and offices of the Department of Agriculture: Weather, Plant Industry, Farm Management, Animal Industry, Chemistry, Markets, Public Roads and its Division of Rural Engineering, Forest Service, Soils, Entomology, States Relations Service, and Publications.

UNITED STATES DOMINATES WORLD IN PRODUCING SWINE

(Continued from page 1.)

stock for breeding, in addition to a number of smaller shipments.

Replacing Inferior Sires

"The most recent activity of the department likely to affect the swine industry as well as other live stock is the proposed new plan for hastening the replacement of inferior sires by good pure breds. Early in June an outline of the plan was mailed to about 1,200 prominent breeders, live-stock officials, and extension workers, soliciting their comments before the campaign is definitely launched. Briefly, the plan includes recognition for the owners of pure-bred sires of the main classes of live stock, namely, cattle, horses, swine, sheep, goats, and poultry. The recognition will take the form of a printed emblem bearing the breeder's name, and which he may display. We feel that this plan will considerably hasten live-stock improvement in the United States and discourage the use of inferior sires. 'Inferior sires' include inferior pure breds as well as scrubs. In a few months the campaign is expected to take definite form."

Other Help for Swine Men

Other principal policies of the Bureau of Animal Industry relating to swine are the following:

Improvement in quality and uniformity through the use of good, pure-bred breeding stock, especially sires.

Encouragement of swine shows and exhibits, swine judging, pig-club work, community breeding, and similar activities.

Proper supervision of feeder and stocker hogs redistributed from market centers for additional feeding.

Effective supervision of the manufacture and distribution in interstate commerce of anti-hog-cholera serum and virus to insure the purity and potency of those products.

Immunization of valuable swine, especially breeding stock, against hog cholera. Immunization of market hogs at an age depending on local conditions; also the immunization of swine introduced into a herd where all the animals have not been vaccinated.

Suppression of tuberculosis in hogs by eradicating that disease from cattle which the hogs follow, and also from dairy cows whose milk is fed to hogs as skim milk, whey, or in other form.

Control of internal and external parasites on hogs through use of sanitary precautions, suitable disinfectants, and general care.

Sanitary housing, and careful studies of feeding for the purpose of making gains conducive to producing pork at a low net cost.

Improved methods of slaughtering hogs and curing pork for home use.

Research in animal genetics as a basis for practical breeding.

Farrowing of fall pigs in Northern States not later than October 1.

Raising two litters of pigs a year from matured sows in Southern States, and also in Northern States under favorable conditions of care and housing.

Continuous feeding and breeding experiments, accompanied by prompt announcement and publication of noteworthy results.

Compilation of statistics and meat-inspection data governing number,

weight, dressed percentage, and other useful information regarding pork production and consumption.

GRAIN BUGS ARE BECOMING SERIOUS MENACE TO CROPS

Grain bugs have increased in numbers so rapidly during the past few years that they are now a serious menace to growing grain in the Intermountain and Southwestern States. Their recent development as an economic pest is due to the change from the natural vegetation in the Western States to cultivated food plants. This is stated by entomologists of the United States Department of Agriculture in Bulletin 779, recently published.

This condition has been brought about by the cultivation of large areas formerly devoted to grazing, which practically eliminated many of the native food plants and caused the insect to attack cultivated crops. They cause damage by piercing the newly formed heads of cereals and feeding on the liquid contents, which prevents the formation of the grain and reduces its weight 10 to 50 per cent from normal.

Many Plants Attacked

Wheat, barley, and rye are the preferred food plants of the grain bug, but it also feeds on other cereals and on cabbage, cotton, peas, beans, tomatoes, and lettuce, in addition to many native plants. Weather influences and the work of parasites in each locality where damage has occurred generally have restricted the destructive outbreaks of grain bugs to periodic intervals of two or three years.

The heads of small grains that have been injured by this pest are conspicuous in the field, especially those of wheat, barley, rye, and oats. Soon after attack, and long before the normal period of ripening is reached, the damaged heads assume a dull, yellowish-white color, which is a sharp contrast to the bright green of the undamaged heads. They appear normal in size, but upon being crushed between the fingers are found to be nearly, if not entirely, empty.

Blame Often Misplaced

In a wind or rain storm many of these stems are broken and the heads fall to the ground. People not familiar with the work of grain bugs frequently attribute the damage which they cause to hail or other weather influences. The grains of affected heads are withered and much reduced in size and weight. Frequently the extent of the damage is not appreciated by the growers until the crop is thrashed. In extreme cases entire fields of small grain have been destroyed completely.

The most effective and practical method of control is the destruction of the adults while they are concentrated in their winter quarters. This is best accomplished by plowing under or burning rubbish and weeds, particularly Russian thistle, in and about cultivated fields. These control measures should be included as a part of the regular farm practice, and any special work required may be carried on during the inactive season at a time when farm labor and equipment ordinarily are idle.

Severe winters result in the death of a large percentage of the hibernating adults and constitute one of the most important factors in restricting destructive outbreaks. During normal winters at least 95 per cent of the bugs survive when hibernating in protected locations. Usually after midsummer the numbers of the insects are greatly reduced by a tiny wasp-like parasite of the eggs and by certain flies which are parasitic on the adult bugs.

Spraying Controls Cherry Leaf-Spot; Safety Calls for Three Applications

Widespread occurrence this season of cherry leaf-spot—the most serious disease affecting the foliage of cherries in the eastern United States, and which is destructive in some of the central States—directs the attention of fruit growers to methods of fighting it. While it is too late in most instances for thorough treatment this season, it is not too late for the third application of the remedy, which is made after the cherries are picked and is of considerable benefit. It is not too early to prepare for next season by studying the control measures which are described in Farmers' Bulletin 1053, recently published by the United States Department of Agriculture, giving the results of experiments carried on in Michigan.

Three sprayings with lime-sulphur solution or Bordeaux mixture will control the disease, says the department. The first application should be made as soon as the petals fall, the second about three weeks later, and the third immediately after the fruit is picked.

Three Applications Essential

Omission of any one of the three applications results in serious foliage loss. When the disease is not severe, especially in the South, it may sometimes be controlled by spraying three weeks after the petals have fallen and directly after the fruit has been picked; but the omission of any of the three applications is always attended with risk.

Upon affected leaves the disease first appears as small purplish spots which later turn brown. These spots are usually circular, but several may be so close together as to form a large irregular area. A corky tissue is formed around the affected areas which drop out, giving the appearance of shot holes, a name often given to the disease.

Badly injured leaves turn yellow and fall. A tree severely attacked in the early spring fails to mature its fruit, which may continue to hang on in a semimature condition throughout the season. In mild cases only a few leaves are injured, but frequently infections are so numerous that the tree is defoliated by midsummer. Leaf-spot is caused by a fungus which passes the winter in the fallen leaves whence it infects the new leaves the following season by means of spores.

Spray Materials Tested

In the experiments conducted by the department in Michigan, various sulphur and copper preparations, both commercial and homemade, were used, but of all the spray materials tested only lime sulphur solution and Bordeaux mixture gave satisfactory results. Trees sprayed with self-boiled lime sulphur were almost as badly diseased as the unsprayed trees.

Bordeaux mixture used in combating leaf spot is composed of three pounds of bluestone, four pounds of lime, and fifty gallons of water, but it should be used only on sour varieties as it burns the foliage of sweet varities severely. When lime-sulphur solution is used, it should be made by diluting 1½ gallons of the stock or commercial solution with 50 gallons of water, for sour varities of cherries; and for sweet cherries I gallon of the stock solution to 50 gallons of water will control the disease and cause very little injury to the foliage. For the control of insect pests two pounds of arsenate of lead paste should be added to each 50 gallons of spray in the first two applications.

HOME SUPPLIES BOUGHT AT SAVING

Home bureau women in Otsego County, N. Y., decided it would be to their advantage to buy can rubbers and dyes cooperatively. Accordingly 1,752 dozens of can rubbers have been purchased at a saving of $87.60 and 208 packages of dyes at a saving of $6.24.

COUNTY AGENTS "CARRY ON" FOR BETTER FARMING

Some Instances from Here and There That Show Work of Extension Men.

FORMERLY IMPORTED PORK, NOW COUNTY SELLS IT

Laurens County, S. C., is an example of how many communities in the Southern States are now using their own resources for food instead of buying food from other places. Laurens County formerly imported most of the pork products used by its people. Now Laurens County is selling pork.

The change began several years ago when a bank in the county offered to provide funds for the purchase of blooded pigs for the use of boys who would promise to care for them. The county demonstration agent accordingly bought and placed a large number of pigs under a long-term-sale-at-cost arrangement. The boys took up the plan with enthusiasm. A year later the bank bought 124 more pigs, most of them gilts, and these were distributed.

The next year the county's production of pork exceeded household requirements and the demands of the home market. The county agent was brought into touch with packers, a local purchasing agency was established, and about 13 months ago a carload of pigs was shipped out. It was probably the first time, and certainly the first time since the 60's, that Laurens County had sold pork.

The bank which provided the way for the boys to buy their pigs has kept its offer continuously open, and expects to do more along this line. Not a dollar has been lost of these advances, an official of the bank says.

COUNTY AGENTS CHEAP AT PRICE

The price of a good cigar once a year is all that it costs the farmers in many counties to have the benefits of county agents, is the way Reed Carpenter, of Mansfield, Ohio, treasurer of the American Shorthorn Breeders' Association, put it recently in addressing a large gathering at a Shorthorn sale in Oklahoma.

TB ASSOCIATION ORGANIZED

The latest farmers' organization in Walworth County, Wis., is a tuberculosis-free herd association, which now includes 50 herds and is expected to include 100 next fall. No one but a farmer whose herd is under Federal supervision for tuberculosis can be a member. The object is to eradicate animal tuberculosis from the county, to promote the production and sale of tuberculosis-free animals, and thereby to safeguard the interests of the cattle-breeding industry. The association was organized by cattle breeders working with the county agent.

SEE TRACTORS DEMONSTRATED

Seven thousand farmers from southern Wisconsin and northern Illinois recently had a chance to see that tractors would work well in their soil. The occasion was a tractor demonstration in Walworth County, Wis., in which the implement and tractor dealers of the county entered 32 tractors, 26 of which took part in plowing. Plowing was done in the morning, and each tractor returned in the afternoon to its tract and showed its ability to disk and harrow the soft, freshly plowed land. The county agent who was in charge of the demonstration says that the farmers appreciated the opportunity to compare the various tractors.

THE SOURCE OF STRENGTH

"All responsibility for the success of the agricultural extension service does not rest on some one at Washington or at the State agricultural college. Every man in this service is as important as any other man. The county agent is just as vital as the director of extension or the Secretary of Agriculture. The county agent who looks to Washington or to his State college for entire direction is doomed to make a failure.

"There is a growing reliance of many elements upon the Government for aid and direction. There is also an increasing disposition of certain elements to use the Government for selfish ends. The latter tendency excites resistance, and therefore may not be a source of danger, but the former tendency grows more and more and the ultimate consequence of it is bound to be a loss of local and personal self-reliance, as the Nation is great only to the extent that its people are great. The Nation does not confer greatness; the people confer greatness upon the Government. If the people cease to rely upon themselves and depend upon the Government for direction and for aid the Nation itself will fail, because the fountain of its greatness will dry up."—Clarence Ousley, Assistant Secretary of Agriculture.

COMMUNITY SELLING HELPS GROWERS MARKET THEIR WOOL

More uniform prices for wool and a more dependable market as a result of competitive bidding for the community clip have resulted in Marion County, Mo., where the local wool crop has been sold in the bulk during the last two seasons. Last year 46 farmers pooled 10,393 pounds of wool, while this year 67 farmers have disposed of 16,015 pounds of wool. The price received for the last clip was 58¼ cents a pound for native first and 56 cents for western long. This price averaged at least 3 cents a pound higher than was bid by local buyers, so that pooling enabled the farmers to realize $480.46 more than by individual sales. The farmers are greatly pleased with results, and indications are that many more will market their clips in neighborhood fashion.

The county agent early in the year asked all the farmers who pooled their wool last season whether they desired to continue the marketing practice. Similar letters were sent to others who were known to have sheep but who had not previously pooled their wool. Subsequently the county agent sent letters to leading wool buyers of that section inviting them to make bids on the wool on or before the date indicated for its sale.

Another set of letters told the farmers where and when to deliver the wool and also that they could obtain sacks and twine from the county agent at a cost of 50 cents a sack and 22 cents a pound for twine. During the time of wool delivery the county agent, or some member of the wool-pooling committee, was constantly present at the storeroom. A shipping tag was tied near the open end of each sack, and on it was written the name and address of the owner as well as the number of sacks and fleeces which he delivered. Similar data were written at the top of a page in a small notebook kept by the county agent. The remainder of the page was left blank for the purpose of recording the different grades of wool, the number of pounds of each grade, and the price received. A typical page of this description is as follows:

No. 11.—*John Blank, Palmyra, star route; 5 sacks, 97 fleeces.*

102 pounds Western, light, fine, at 56 cents $57.12

281 pounds Western, light, short, at 46 cents	129.26
33 pounds clear native, first, at 58¼ cents	19.22
5 sacks, at 50 cents	2.50
Total	208.10
Less 0.47% expense	.98
Balance	207.12

Commitee Members Assist

Four bids were received and on the day of sale three of the bidders were present and made a personal examination of the wool before handing in their bids. The entire committee and the county agent were present all day and after all bids had been received, they were compared and the wool was sold to the highest bidder.

All of the following day was devoted to grading the wool and weighing the different grades that each farmer had delivered. Two members of the committee took the wool from sacks and assisted the purchaser in determining the grades, the third member of the committee did the weighing and the county agent recorded the weights and grades on the proper page of the note book.

The next step in the transaction was to find the total number of pounds of wool of each grade and determine the total amount to be paid for all of it by the purchaser, who gave a check to the committee for the entire amount. This check was deposited in a local bank to be drawn upon in remitting to the farmers.

As the last step in the transaction, the county agent figured out what each member of the pool should receive for his wool and sent a check for the amount. The marketing expenses were prorated among the members.

TUBERCULOUS SOWS MAY PRODUCE HEALTHY PIGS

A number of swine experiments by the Bureau of Animal Industry, United States Department of Agriculture, recently have been completed or have been continued sufficiently far to make possible the announcement of results. Recent developments along this line follow:

Tuberculosis among brood sows does not seem to be a menace to their progeny if other exposure to infection is eliminated.

Feces of tuberculous cattle have been found to be the most dangerous tuberculous material to which hogs are exposed under natural conditions.

It now appears that the disease known as thumps in young pigs may in some cases at least be the result of intestinal worms, which in the larval stage migrate to the lungs, causing pneumonia. Some very thorough work leads to that conclusion, and research is now being directed to prevent infection of suckling pigs with this parasite.

The disease causing the birth of immature and hairless pigs seems to be most prevalent in the far West. Its investigation is being continued.

It appears from experiments with hog-cholera virus and the ways in which cholera spreads that pigeons and similar birds are unlikely to transmit hog cholera.

In the field of meat inspection, the cause of ham souring has been worked out.

Canning sausage in oil has been investigated, and rules governing the preparation of this product have been adopted.

Bacteria in the carcasses of hog-cholera hogs have been studied.

The process of dehairing and washing hog carcasses in packing establishments has been investigated and measures adopted to prevent dirty wash water from entering the wound in the neck and penetrating the blood vessels.

Studies of trichinæ in pork have been continued, and the results, which obviate the necessity of microscopic inspection for trichina, have been used as a basis for revised meat-inspection regulations.

Give-and-Take in Eradication of TB; How Live-Stock Owners Get Benefits

The live-stock owner must give his help if he is to receive the benefits of tuberculosis eradication. It is a give-and-take proposition. The man who does not give his whole-hearted cooperation to the State and Federal authorities must expect to get along with his cattle constantly under the shadowy threat of TB.

That point is brought out in a poster issued by the commissioner of agriculture of Vermont.

What is Received

What the State and Federal Governments will do to help the cattle owner get rid of TB is thus summarized:

"1. Send a competent veterinarian to your farm free of charge to apply the tuberculin test to your herd at least once a year until it has passed two tests without a reactor.

"2. Appraise any of your animals reacting to the test at their market value, with a limit of $100 for each grade animal and $150 for each registered animal, and pay you 75 per cent of such appraisal.

"3. Send a competent inspector to supervise the cleaning up and disinfection of your premises, if tuberculosis is found in your herd.

"4. When your herd has passed two annual or three semiannual tests without a reactor it will be placed on the accredited register of the State and Federal Departments of Agriculture. You will receive an accredited herd certificate, and cattle from your herd may be shipped interstate without further test for a period of one year.

"5. Your herd, when accredited, will be listed in a booklet published by the United States Department of Agriculture and sent to all parts of the country. Buyers of tuberculin-tested cattle will seek out your herd."

What the Cattle Owner Must Give

The following is what is required by the State and Federal Governments:

"1. That you submit your entire herd to examination and test at such times as are considered necessary by State or Federal officials.

"2. That you will allow no cattle to be associated with your herd which have not passed a tuberculin test approved by State or Federal officials.

"3. That you will thoroughly clean and disinfect your premises, if tuberculosis is found in your herd, under the direction of State or Federal officials.

"4. That all milk or other dairy products fed to your calves shall be from cows which have passed an approved tuberculin test or shall be pasteurized by heating to not less than 150° F. for not less than 20 minutes.

"5. That you transport the veterinarian assigned to make your test and the inspector sent to supervise disinfection of your premises from the railroad station to your farm and return or to a neighboring farm, if desired.

"6. That you slaughter on your premises or drive to railroad station, load on cars, and bill out any reactors found in your herd as directed by State or Federal officials."

NOTE.—Appraisal varies in different States.

The second generation of the larger cornstalk borer of the South Atlantic States passes the winter only in the corn roots, so if these are destroyed or plowed under deeply, the pest will be largely decreased. The injury is worst where corn follows corn, so rotation of crops will help to destroy the pest.

WHAT BOYS AND GIRLS IN BUSY CLUBS ARE DOING

Here Are Instances of Achievement in the Primary Schools of Better Agriculture and Housekeeping

GOOD PROFITS RECORDED BY POULTRY CLUB MEMBER

A net return of $2 a hen over a four months' period is the remarkable record of a North Carolina poultry club member who, about the middle of January, mated 15 White Leghorn hens with a standard-bred male of the same variety. During the ensuing four months these 15 hens laid 1,108 eggs. Of this number 50 were placed in the incubator, from which 41 chicks were hatched and all except five were raised. The owner marketed six cockerels for $3.60. He now has on hand 30 chicks. He sold 304 eggs for hatching purposes for $30.50, as well as 54½ dozen market eggs for $20.07, making a total income from his small flock of $54.80. The cost of feeding the flock during this time was $21.40, which leaves a net return of $33.40.

This record is by no means exceptional, as, with the coming of the poultry club and with the development of enthusiasm among its members, egg producing, as well as flock income returns, has greatly increased in every section.

Properly developed and fostered, poultrying is one of the most profitable side-lines in which most farmers can become interested, and, at present there is hardly any activity of modern farming which will pay better than the maintenance and production of good poultry.

PIG CLUB CONTESTS ARE CONDUCTED MONTHLY

Monthly pig club contests, as a means of keeping up interest in club work, are conducted in Union Parish, La. These contests also are incentives to better record keeping on the part of the club boys, as correct records are an important part of the contests.

The account of the club contest for May says:

"Our monthly pig club contest came to a close on Monday and the winner was awarded a prize of $10. The pig that won is a small-bone Poland China barrow, farrowed January 21, and weighed 63 pounds on May 1, when the contest began. During the month he was kept on an oats pasture and fed a mixture of bran, hominy feed, and milk. On June 1 the pig weighed 120 pounds, or a gain of 57 pounds, at an average cost of 10 cents a pound.

"A similar contest will be conducted in September. We have found that this method keeps at a high pitch the interest in pig club work, and it also encourages the best feeding methods."

CLUB MEMBER WINS PRIZES AND LEARNS SOME LESSONS

A pig well born is half raised. This was the theory of Rue Clegg, a pig club boy in Utah, who took special pains to see that his sows were well cared for a month before farrowing time. Fourteen pigs were born in two litters, and then their owner began to give them the careful attention that his club work had taught him was necessary for their proper growth. He felt rewarded when at the county club fair four registered Berkshires he had sold to other club members took prizes and three of his own pigs won awards.

This club member figures his net returns for the season at $249, but his success was not too much to show him that he can still improve his work.

"Another season," he says in his report to the United States Department of Agriculture, "I will be more careful and start to treat for vermin and such pests in the winter, make better pens, and try to be a little more prompt in feeding."

GOOD START—GOOD ENDING

Clarence Sellers, a 14-year-old farm boy of Sedgwick County, Colo., started out right in a pig club. He bought a registered weanling Duroc-Jersey gilt, and his judgment in selecting a good pig was shown when his sow, "State-Line Duroc," developed into an animal of excellent show-ring type. Her marvelous growth and thick velvet covering of flesh spoke well for the feed and care given her. This sow entered the ring at the Denver National Western Stock Show as a senior pig weighing 350 pounds, smooth as velvet, with lots of length, height, bone, and vigor.

The initial cost of the pig was $18, and the cost of her feed was $30; the premiums won totaled $35, and the present value of the sow as a breeding animal is reckoned at $125.

EASY FOR YOUNGSTERS TO LEARN POULTRY WORK

Teaching poultry club boys and girls the rudiments of poultry keeping was begun by the United States Department of Agriculture about seven years ago. The average youngster takes to poultry keeping with interest, particularly when he is allowed to sell the surplus meat and eggs and invest the income in the savings bank or in better foundation stock for the improvement of his flock. The training and experience which the children realize from their daily association with hens is of great all-round value to them and is of special help in developing a love for country life and in keeping rural boys and girls on the farm. What a young school girl can accomplish in poultry raising is indicated by a letter from a poultry club girl who writes:

"I keep Barred Plymouth Rocks and single-comb Rhode Island Reds, and in setting my hens I always remove the broody hens from the laying hens and place them in some other building where they will not be disturbed. I never set hens that are exceedingly heavy, as they are more likely to break the eggs.

"When the chicks come I do not feed them anything except grit and charcoal until they are 48 hours old, when I give them either oatmeal and hard-boiled eggs chopped fine, or else biscuit crumbled up with the eggs. I feed in this manner for the first five or six days, giving the chicks small quantities four to five times a day, as these youngsters like to eat often.

"At about the end of the first week I begin feeding small grain in the morning, at midday, and in the evening, and keep a mash made of wheat bran and a little corn meal, and 10 per cent of beef scrap before the chickens all the time.

"This spring I hatched 135 Red chicks and 110 Rocks and raised nearly all of them. I sold 30 young cockerels and have on hand 195 chicks at present, some of them very fine pullets. I have sold 59 settings of eggs this spring, while during the four months from February to June I sold 164 dozen eggs to neighbors, while we used 42 dozen on our own table. During this period my Rhode Island Reds laid 1,076 eggs, while the Barred Rocks laid 853 eggs."

WHAT THE DEPARTMENT OF AGRICULTURE IS DOING

Little Items About Big Jobs That Are Helping American Farmers to Feed Nations

Sugar Forecast Above Average.

The sugar season of 1919–20 begins with a forecast of production of about 1,108,000 short tons, made by the Bureau of Crop Estimates of the United States Department of Agriculture, or about 73,500 tons more than the average of the preceding six years, during which time the total of the two crops of beet and cane sugar has slightly exceeded 1,000,000 tons every year except in 1914–15.

The beet-sugar forecast for this year is higher than the record crop of 1915–16 by nearly 75,000 tons and is above the average of the preceding six years by about 169,000 tons, but the cane-sugar crop of this year is forecast at only 159,069 tons, compared with which is the average of about 254,500 tons of the preceding six years. During many years the cane-sugar crop of only 1915–16 has been lower and of only 1912–13 has been nearly as small. The low prospects of this year's crop, at the date of July 1, are due to a wet, cool spring and to a somewhat low acreage. In recent years cane sugar has usually been about one-quarter of the total of cane and beet sugar produced in contiguous United States, but this year the prospect is that it will be only about one-seventh.

The area planted to sugar beets this year is the largest one on record and, it is estimated, reaches 890,400 acres, or 200,700 acres more than last year and 83,800 acres more than the largest previous area in 1917. The condition of the crop July 1 was low, on account of adverse weather conditions.

Macaroni Standards Again in Force.

Prewar standards for macaroni, spaghetti, vermicelli, and similar products are now in effect, say the officials of the Bureau of Chemistry, United States Department of Agriculture, in charge of the enforcement of the food and drugs act.

During the period of the war substitutes for semolina of hard wheat were permitted for the manufacture of these products because of the urgent necessity for conserving wheat. Since this necessity no longer justifies substitution, all macaroni, spaghetti, and similar products shipped within the jurisdiction of the Federal food and drugs act must comply with the standards as published in United States Department of Agriculture Circular 136.

The standards define macaroni and kindred products as made from the semolina of hard wheat and containing not more than 13½ per cent of moisture. Products made from flour or from a mixture of flour and semolina may not be labeled as "Macaroni" or "Spaghetti," according to the standards, but should be labeled as "Flour Macaroni" or "Flour Spaghetti," etc., as the case may be.

Real macaroni made from the semolina of hard wheat when cooked has different qualities than those of flour macaroni. It is much preferred because of these qualities by those who know what real macaroni is, although flour macaroni and kindred products have merits and are excellent foods. Flour macaroni being inferior to real macaroni should be cheaper in price. The enforcement of the standard enables the housewife to know in each instance whether she is obtaining a product made from semolina or one made wholly or in part from flour.

Will Demonstrate Pork Curing.

The national swine show for 1919 will be held at Des Moines, Iowa, September 29 to October 4. This annual event is the most important connected with the swine industry. At the 1918 show held at Cedar Rapids, Iowa, the United States Department of Agriculture made an exhibit of smoked meats. It is the intention of the department this year to make a much larger exhibit than it did in 1918. In addition to the showing of smoked meats, the formulas used in curing meats will be demonstrated. Home curing of pork is being studied by many farmers who have been in the habit of purchasing their meats from the local dealer.

Woodland and Woods vs. Woodlot.

The increased interest in private forestry, particularly with reference to farm forestry, has brought about the general acceptance of the term "woodland" or "woods" instead of the original one of "woodlot," according to the Forest Service of the United States Department of Agriculture.

A large proportion of the woodland in the eastern United States is in irregularly shaped tracts, spreading out over ridges, ravines, slopes, swamps, and poor lands, whereas "woodlot" carries the idea of a small sized, regularly shaped, and, in a large section of the country, fenced tract. When applied to the large or irregularly shaped tracts, it is obvious that the word inadequately describes the conditions. "Woodlot" probably originated in New England and seems fairly well established there. So long as only conditions like those in New England were considered, "woodlot" was accepted as adequate, but in the last few years farm forestry has been developing rapidly throughout the country.

"Woodland" and "woods" are more satisfactory, more expressive, and avoid the possibility of creating confusion in the minds of the people over most sections of the country where the word "woodlots" has never been in local use.

Montana Stock Moved.

Cut-over and burned-over lands in northern Minnesota are being utilized for the pasturage of Montana live stock, reports a representative of the United States Department of Agriculture. About 13,000 sheep have been moved to Minnesota, as drought has made the Montana pastures unsuitable for stocking to capacity. Arrangements have been made between Montana stockmen and owners of cut-over lands in Minnesota to continue this pasturage plan, idle land thereby being used for profitable live-stock production.

Better Breeding—More Meat.

Use of standard-bred fowls in east central Tennessee has increased the average weight of poultry in that section 25 per cent. This is the statement of a local poultry buyer made to a specialist of the United States Department of Agriculture, which cooperates with the State agricultural college in the work. Better breeding has the same beneficial effect on poultry as on larger live stock. It means more meat, more profits, more satisfaction to the breeder.

Diseases Attack Kansas Potatoes.

Field experts of the United States Department of Agriculture report the occurrence of blackleg in many Kansas potato fields. At Muncie, Kans., one field showed

18 per cent blackleg injury, as well as 30 per cent injury from the Rhizoctonia. At Turner and De Soto 5 to 10 per cent injury from blackleg was also found. Near Topeka a 110-acre field planted with treated stock showed only a trace of blackleg injury, while another 60-acre field of untreated seed was found to have a 5 to 10 per cent injury from blackleg. Despite these diseases, it is estimated that the Topeka district will average close to 250 bushels of potatoes to the acre, while in some fields the crop may reach the 300-bushel mark.

Work to Eradicate Potato Wart.

State and Federal experts are cooperating in Pennsylvania in experimental work to eradicate the potato-wart disease which was recently found in the gardens of certain mining towns. Potato wart is one of the most injurious pests which attacks potatoes. The disease was probably introduced into Pennsylvania on imported potatoes, and up to the present time no other outbreaks have been discovered in this country. However, this disease may also have been introduced in a similar manner into other parts of the country, and on this account the United States Department of Agriculture is keeping sharp lookout for signs of wart in other potato-growing sections.

Forecast of Peach Shipments.

The prospective commercial peach crop of 30,082,000 bushels, forecast July 9 by the Bureau of Crop Estimates, United States Department of Agriculture, appears liberal beside the very light crop of 20,000,000 to 21,000,000 last year, but the present crop is moderate when compared with those of recent years. Probable shipments appear more limited when it is considered that fully half the crop, or over 16,000,000 bushels, is credited to California, says a report from the Bureau of Markets. Nearly 90 per cent of the California crop is commonly used for drying and canning, which would leave only about 3,600 cars to be shipped as fresh fruit. Actual shipments may equal 4,000 cars. In previous years the California crop has not been over one-third the total. Georgia, the leading southeastern producing section, according to early indications, will ship 7,700 cars, including 3,000 cars of Elbertas, compared with 8,400, last year's totals. Arkansas, leading in the south central section, may ship 3,200 cars, or nearly half as many cars as Georgia. Oklahoma is likely to become a fairly heavy shipping section for the first time, with possibly 800 cars. New York, usually the heaviest shipping State of the Northeast, may have twice the very short crop of last year. The forecast of carlot shipments is 34,000, compared with 15,903 cars shipped last year.

Lambs 122 Per Cent of Flock.

The Baird Mills Lambing Club of Tennessee raised and marketed 1,150 lambs from 938 ewes. Specialists of the United States Department of Agriculture say that this is a splendid record and speaks volumes for the manner in which the lambs and ewes were cared for by the members of this club. It is not often, they point out, that a dozen farmers owning a large number of ewes raise and market a lamb crop that is 122 per cent of the ewes.

The means by which such results can be obtained are: Eliminating all undesirable ewes in the fall prior to the breeding season; providing adequate pasture and a little supplementary grain feed for the breeding flock; proper feeding during the fall and early winter; plenty of exercise each day for the ewes; and roomy, light, dry, and well-ventilated quarters for them.

Study Sheep on Western Ranch.

Several results of importance to western sheep men have been ascertained by experiments at the Government sheep ranch near Dubois, Idaho, which has been in operation two years. Formerly it was customary for range sheep men to discard ewes which did not bear lambs when 2 years old. Extensive investigations by the Department of Agriculture have developed that such ewes are just as valuable for future breeding as those which bear lambs as 2-year-olds.

Individual records are kept on the Government sheep ranch relative to the weight of fleece, length of fleece, character of fleece, fineness of fiber, and mutton quality of each animal, while detailed account is maintained of the offspring of each ewe. The particular utility of the results obtained arises from the fact that the flock is handled just as are all similar bands of sheep in the hands of Wyoming stockmen.

Experiments are being conducted to develop a type of sheep more suitable to the western range conditions than the types now prevalent. It is hoped to extend this work in both mutton conformation and length and weight of fleece.

There are at present about 1,500 head head of pure-bred Rambouillets, Lincoln Rambouillets, Cotswold Rambouillets, Leister Rambouillets, and Romney Rambouillets on the Government ranch. Crossbreeding experiments are being conducted with all these breeds and crosses, as well as the use of pure-bred Corriedales, which have been mated with crossbred ewes.

FREQUENCY OF FEEDING CHICKENS

Some poultrymen feed their flocks twice a day, while others feed them three times a day. The best plan is to feed fowls in confinement three times a day and those having free range in summer twice a day. When there is a very long interval between feeds it is difficult to keep fowls busy which are kept in confinement. Idle fowls often contract bad habits, such as feather pulling and egg eating, besides going out of condition from lack of exercise.

In case it is not convenient to feed three times a day, the moistened mash may be fed in the morning, and at the same time the noon feed of grain may be scattered in the litter, which will keep the fowls busy a great part of the day.

For those who can not conveniently feed their fowls early in the morning a good plan is to scatter grain plentifully in the litter after the birds have gone to roost. This grain will furnish feed for the early morning.

Some poultry keepers can look after their fowls only once a day. If this is in the morning, moistened mash may be fed, followed by throwing grain in the litter to furnish feed for the remainder of the day. If it is in the evening, before dark, a moistened mash may be given, and either after the fowls go to roost or in the morning, before daylight, grain may be scattered in the litter for eating during the day.

NINE FINE PIGS WIN A PRIZE

Five little pigs went to market, according to the nursery rhyme, but nine fine red pigs went to the Durango Fair (La Plata County, Colo.), and they were in such a high degree of development that they won first prize on the day they were 115 days old, at which time they weighed an average of 115 pounds each.

These nine fine red pigs were the product of a gilt that Oliver Pedwell, a champion pig club member of Durango had bought on March 20, 1918, promising to pay $72.15 for her on November 1. He did so, and figures his net return at $265, and is preparing for another successful year in the club work of La Plata County.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1919

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INDEX TO VOLUME VI

WEEKLY NEWS LETTER

AUGUST 7, 1918—JULY 30, 1919

Subject.	No.	Page.
Accounting, household, method	1	11
Accounts—		
farm women	8	1
wool-pooling committee sample	52	12
ADAMS, R. L., appointment as Acting Chief	26	7
Adulterant, food, saccharin	14	11
Adulteration—		
foods, drugs, and feeds, methods	42	2-3, 4
wheat, by watering	29	12
Advisers, agricultural, for district draft boards	10	1
Agent—		
county—		
importance in agricultural work	10	15
work on card index of farms, Connecticut	6	12
farm, work, illustration	45	11
Agents—		
county—		
aid to fruit growers	6	9
aid of stockmen	46	10
cost to farmers	52	12
encouragement by business men	45	14
information on labor needs	7	1
number increase	4	3
travel difficulties	6	10
work	47	12-13
work in food production	14	13
work in food production and conservation	1	6
work in seed selection and location	6	5
work, results	45	10-14
	52	12
Agricultural—		
advisers aids to draft boards	11	6
Advisory Board on price of pork	10	3
Advisory Committee, disbandment	33	12
colleges, boys entering	34	9
Commission—		
European studies, membership, and report	24	1, 15
study of conditions in Europe	24	1, 15
Committee, American, personnel, etc	8	1
education, discussion by Secretary Houston	4	2
extension, funds needed, letter from Secretary Houston	35	9
Agricultural—Continued.		
mission, American, to France, personnel, etc	5	1
Agriculture—		
after-the-war essentials	27	1
census, Jan. 1, 1920	36	8
change in Mississippi	37	5
Commission, return from Europe	15	1
Commissioners, State, National Association, address of Secretary Houston	24	9
Department—		
aid in war work	19	3
aid to farmers in food production	17	13
	18	22
	19	11
	20	6
	21	14
	22	12
	23	7
	24	10
	25	14
	26	20
	30	14
aid to soldiers, etc	35	1, 16
appointment of draft advisers	9	12
dairy experiment work	41	3-4
directory	6	16
directory November, 1918	14	16
farm home plans	42	10-11
new publications	34	4
	37	5
publications, list	29	9
sale of nitrate to farmers	39	1
sale of potash	30	14
statement in regard to grain loans	1	1
thrift work	44	11
what the department is doing (series)	1-52	.....
work for farmer	7	6
development possibilities, statement of Secretary	25	1, 16
displays in show windows	16	7
editorial conference, Nov. 20, 1918, address by Agriculture Secretary	18	1, 5
exhibits for soldiers in France	35	8
extension—		
expansion, and value of service	19	9, 10
farmers' cooperation, address by Assistant Secretary Ousley	26	3
extension service—		
available data	18	1
description and scope	18	1
Agriculture—Continued.		
extension work—		
continuance	26	1, 23
methods, and success in West Virginia	25	
finance and credit, address by Assistant Secretary Ousley	31	9
forecast for 1919	26	1, 13
information, on motor truck distribution in Alabama	16	6
new laws, aid to farmers, Secretary's statement	19	10
preparedness at opening of war	4	2
present and future, address	35	3, 14
proportion to other occupations	47	11
research and practice	32	9
Secretary—		
address on crop-production cost	25	10
address on food production, Nov. 20, 1918	18	1, 5
circular on grain loans to farmers	5	4
cotton distribution and marketing, corrective statement	21	5
hog-cholera control, letter to Representative A. T. Smith	24	15
increase of grazing permit rates, regulations	20	2
letter on continuance of extension work, and appropriations letter on food and feed production in South	26	1, 23
	24	1
letter to governor on cattle quarantine removal in South Carolina	21	7
regulations for shipping cattle	48	1-2
report, 1918	19	1, 13
statement—		
on agriculture possibilities	25	1, 16
on road construction	19	2
wheat price guarantee	23	1, 3
See also Houston, D. F.		
studies in England, France, and Italy	24	1, 15
surveys, use and value of airplanes	30	9
trade Commissioner, duties	44	2
use of airplane	30	15
war program, 1918	9	1
Aircraft—		
production, cooperative work	5	12
use in forest fires	37	1

140786——20—1

Subject.	No.	Page.
Airplane—		
conditions governing, dangers, etc.	41	4–5
construction, forestry work	47	5
flights, overseas, aid of Weather Bureau	41	4–5
use in agriculture	30	15
Airplanes—		
aid in location of forest fires	50	15
forest patrols	44	8
naval service, aid of Weather Bureau	41	14
oil supply assured	5	12
use in discovery of outlaw Texas cotton fields	30	9
Alabama—		
agriculture information, distribution by motor truck	16	6
bird laws under treaty act	4	8
broom-corn growing, and broom making	35	10
community club work	47	10
farm labor, supply	5	5
negro farmers, organization	25	7
tick eradication, law	40	8
Alaska—		
bird laws under treaty act	4	8
food crops, development experiments	24	13
National Forest, area reduction	43	16
seed grain and plants, breeding experiments	25	7
Alfalfa—		
acreage increase	34	6
chalcis fly in seed	37	16
forage, value for hogs	8	2
hay—		
injury by weevils	26	17
value for hog feed	10	14
honey-plant value	1	14
injury—		
by clover worm, control, etc	41	7
by dodder, and control	50	7
by webworm, and control	3	4
leaf spots, description and cause	50	13
Peruvian—		
popularity at Yuma	43	3
relation to cold	43	3
products, warnings by Department	39	12–13
protein feed for hogs	2	1
seed—		
cooperative buying	26	6
prices, 1916–1918	25	13
purchase, methods	27	8
value for hog pastures	39	3–4
yellows, control	47	14
Algeria, opportunities for food-production	24	8
Ammonia, fertilizer, prices	46	11
Animal diseases—		
control, address by Dr. Mohler	32	1, 7
decrease	46	12
Animal Industry, Bureau—		
aid to hog breeders	52	10
directory	33	6
growth	43	15
sires, scrub, elimination	33	9
tuberculosis—		
herd testing	34	13
National and State eradication	40	3
Animals—		
breeding, shipment embargo lifted	18	11
dead, disposal of, to prevent disease	6	2
Animals—Continued.		
feeding science	47	16
food needs	48	4
horses and mules, numbers shipped overseas for war	30	9
loss from plant poisoning	33	8
losses on farm	46	12
meat, increase on farms	45	16
need in France	52	3
predatory—		
control campaign, studies	34	7
control on forest ranges	12	5
extermination	29	14
extermination on ranges	7	6
hunting on ranges	45	4–5
killing as protection to live stock	15	6
value of skins	8	7
tuberculosis—		
testing regulations	45	9
tests, May, 1919	50	15
wild, killing, benefits	43	5
Antitoxins, manufacture, regulations	7	1
Ants, white, control in buildings	51	3
Aphis, wooly apple, destruction by carbon disulphid	26	22
Apple—		
aphis, wooly, destruction	26	22
forecasts, distribution to growers	20	5
trees—		
planting in fall	14	1
pruning in winter	14	10
Apples—		
dried, demand and supply	5	11
growing, yield for various districts	1	13
production—		
exports, etc	39	4
increase, 1918	1	13
reporters, volunteer, etc	22	14
storage, notes	6	5
Appropriation, dehydration work	14	15
Arbor Day, observance urged	35	1
Argentina, wheat increase, 1891–1919	40	8
Arizona—		
agricultural advisers for draft boards	10	1
bird laws under treaty act	4	8
boys' and girls' clubs	34	10
poultry as sideline, profits	46	13
sewing demonstration	49	6
Arkansas—		
agricultural advisers for draft boards	10	1
business men and clubs	45	14
cattle-tick control	31	15
community hog shipping	41	10
egg circle, market profits	47	14
farm bureau, tour of study	50	9
game laws under treaty act	4	8
marketing sweet potatoes, methods	36	13
peach shipping, forecast	52	16
poultry club and association work	41	8
source of arsenic supply	48	3
summer schools, success	37	15
tomato club work, prizes, etc	40	16
Army—		
beef—		
grading by Agricultural Department	17	11
improved quality	13	6
Army—Continued.		
drug testing	9	12
remounts, aid of Department in breeding work	1	6
road equipment to State highways	47	1–2
supplies, exports, definition	27	3
trucks, transfer to Roads Bureau	40	15
Army worms—		
control in Florida	4	5
control methods	44 45	1–2, 15 8
destruction	50	16
Arsenic—		
use for cattle dipping	48	3
white, use in poison bait	45	10
Asparagus—		
forcing in field or cellar	9	5
rust-resistant	34 43	5 16
Aspen lands, reproduction, with pasturage	28	9
Associations, cow-testing, decrease in war	17	6
Australia—		
citrus quarantine regulations	49	4
tree planting as memorials	45	8
Automobile, utilization for sleeping quarters by county agent	6	9
Aviation, aid of Weather Bureau	46	7
Baby-beef club, work of Minnesota girl	34	9
Bacon, home curing, methods, and brine formula	20	8
Bacteria—		
culture, supply by Agriculture Department	11	4
food, control by cooking	39	3
BAERMAN, RALPH, Minnesota, garden work	37	7
Bait, poison, for grasshoppers	47 51	4 6
BAKER, NEWTON D., War Secretary, letter on road construction	20	1
Bakers, aid in food conservation by home-demonstration agents	1	7
Ballast, ship, source of plant enemies	37	9
Balsam, production from red gum trees	50	8
Bamboo, quarantine on account of smut	4	6
Banding, apple trees, for moth control	30	13
Bankers—		
aid to pig-clubs, results	52	12
Association, welcome to committee	31	1, 9
Banks—		
agents for loans to farmers	1	14
aid in making grain loans to farmers	1	16
Federal loan, agents in seed-grain loans	25	7
loans to farmers in drought-stricken areas	5	4
Barberry—		
common—		
control campaign	31	5, 14
eradication	9	13
injury to wheat, and control	25	11
destruction for control of rust	37	15
eradication in Iowa	29	14–15
eradication, Nebraska campaign	11	7
eradication work	31	6, 14
Japanese—		
harmlessness	9	13
harmlessness and value	25	11

Subject.	No.	Page.
Barberry—Continued.		
quarantine for stem-rust control	28	7
	35	13
	40	8
Barley—		
acreage maintenance	31	2
crop increase 1899-1918	27	15
diseases, studies and control	1	7
early sowing	40	4
stocks—		
for 1918	10	1
on hand, Mar. 1, 1918, 1919	36	7
on Oct. 1, 1918	14	2
supply, in May, 1919	45	7
use for maltose	40	15
Barns, cattle, destruction by forest fires in Minnesota	23	2
Barrel, potato, requirements	52	4
BARUCH, B. M., chairman War Industries Board, nitrate statement	24	7
Baskets, climax—		
loading in cars	3	6
use in grape shipments	9	13
BATE, GEN. T. R. F., statement on cavalry horses, scarcity	16	2
Bean—		
"bush" velvet, value	34	2
Great Northern, description, etc	37	10
Guada, really a gourd	4	7
new variety	36	14
seed—		
disease-free, saving	6	5
selection in field	5	11
velvet, new variety, description, etc.	34	12
Beans—		
bunch, growing directions	37	4
growing in Washington, profit	43	10
harvesting and care for weevil control	4	7
horse, increase in production	9	15
Mung, comparison	36	9
price, stabilizing	44	15
prices, food value, and recipes	36	2
production, increase	1	10
seed, development and sale	17	3
stock reported, 1918	1	9
stocks—		
Mar. 1, 1918, 1919	36	7
Oct. 1, 1918	14	3
velvet—		
and corn silage, cattle fattening experiments	6	6
harvest, value	10	4
soil improvement	29	15
weevils, origin and control	46	14
Bear grass, use as stock feed	3	1
Bears, control on forest ranges	12	5
Bedbugs, killer tests, formulas, etc	24	16
Bedding, use and value of leaves	17	13
Bee diseases, diagnosis	9	16
Beef—		
buying, change in weight requirements	14	12
calves, care of	44	6, 7
canning club, work of one day	17	16
cattle—		
prices on foot	49	2
profit increase, methods	40	6
crisis, need of supervision	49	1-2
exports, rank of countries	38	2
grading by Agriculture Department	17	11
Beef—Continued		
improved quality, purchase for Army	13	6
light-weight, preference for home consumption	4	3
prices, various cities	49	5
Beekeepers, extension schools, studies	6	8
	38	13
	39	13
Beekeeping—		
importance and growth	1	14
	21	6
instruction for soldiers	49	6-7
record of club boy	44	10
work of club	34	9
Bees—		
colony transfers, directions	5	3
foulbrood, European, control	5	16
housing and care	5	3
protection by packing hives	10	7
protection in cold regions	10	2
winter favorable	46	13
winter killing, prevention	10	6
wintering—		
in cellars	14	3
	16	8
outdoors	17	16
Beet, sugar, crop prospects, 1919	34	12
Beetle—		
cucumber, injury to vegetables, and control	41	13
Japanese—		
control by quarantine	11	5
control in New Jersey	33	13
eradication methods	21	15
potato, in freight cars	30	14
tobacco—		
control	37	11
destructiveness	40	11
distribution by commerce	41	12
Beets—		
stands of, importance	2	4
sugar—		
acreage and yield, 1918	38	12
acreage in 1919	52	15
by-products feed for stock	6	11
growing, cost reduction	42	4-5
growing in California	46	5
growing in Utah	50	6
growing methods, discussion	22	10
labor-saving methods	42	4-5
mills, building of	2	1
Montana, requirements	27	15
production cost	26	24
seed, advice for 1921	39	8
seed production	22	7
value of tops for ensilage	16	7
Beeves—		
baby, exhibits by Iowa club boys, prizes and prices	19	7
light weight, markets for	14	12
Belgium, field-seed needs for 1920	41	1, 5
Belle Fourche Project, hog production	50	2
Beltsville Experiment Farm—		
cattle-fattening experiments	6	6
milk production	35	11
Bent grasses. *See* Grasses.		
Berries—		
fall or spring setting	32	4
value of partial shade	32	10
Berry bushes, pruning	14	11
Billbugs, injury to crops	44	64
Bins—		
grain, in portable form, construction	1	15
sorghum grain, storage, requirements	1	15
Biological Survey—		
bird and game information, reports	48	7
predatory animals, control	12	5
rat-catching methods	28	10
Biological veterinary products, testing	7	2
Bird—		
laws, migratory-bird-treaty act	4	8
migratory, treaty for	16	2
protection, directory	10	7
treaty, amendment, protection to migratory birds	16	4
Birds—		
game, information from hunters	48	7
insectivorous, protection continuous	4	8
killing by cats, legislation against, various States	16	8
migratory—		
game, open seasons	13	8
game, sale prohibition	17	5
law violations	25	7
protection by treaty amendment	16	4
protection laws and needs	38	9
United States-Canadian treaty	4	1
protected continuously, list	4	2
protection by Federal treaty	16	8
spread of hog cholera	52	13
wild, winter feeding	19	7
Bisulphid carbon, use in control of seed-corn insects	1	3
Blackberry, Logan—		
description, uses, and value	20	4
juice, value	45	5
Blackleg—		
Idaho and Oregon, control work	29	15
potato, outbreak in Kansas	52	15-16
Blast, rice, studies and control	1	7
Blight, tomato-leaf, control by spraying	50	12-13
Blind poultryman, record	52	8
Blister rust, white pine, control	4	5
Bloating, cattle, cause and treatment	45	3
Blueberry, hybridization experiments, in New Jersey	25	7
Bluegrass, pasture with sweet clover	28	7
Boll weevil—		
control by destruction of cotton stalks	14	10
destruction of cotton	6	14
Bolshevism, statement by Secretary Houston	42	3
Bollworm—		
fumigation houses	30	15
pink—		
control methods and results	19	5
destruction	27	20
eradication campaign	27	19-20
eradication, progress	1	7
extermination work and forecasts	19	5
extermination work in Texas	35	12
fumigation for control	9	16
infestation	29	11-12
injury to cotton only	11	8
reinfestation	27	20

Subject.	No.	Page.
Bonds—		
road-building, issue, 1918	20	4
Victory, buying by farmers	40	1–2
Books, account, preparation	8	2
Bordeaux mixture, cherry spraying, precaution	52	11
Bordeaux mixtures, mixing exhibits	11	7
Borer—		
corn—		
control by clean-up methods	12	3
	39	9
control by corn quarantine	11	6
damages	52	7
eradication, farmers' aid asked	16	2
quarantine postponement	33	13
spread prevention, appropriation	31	8
spreading methods	42	6–7
See also Corn borer.		
cornstalk, control	31	8
	52	13
Borers—		
ash-wood, injuries, and control	22	5
control on trees	43	4
corn, description, habits, and control	42	6–7
tree, control methods	26	15
Boston—		
child survey, methods and scope	42	15
Commons, demonstration garden	47	15
Bottle, heat-holding, description and use	25	10
Bottles, milk, losses to dealers	36	10
Boy Scouts, search for black walnut	7	6
Boys—		
clubs—		
activities	30	6, 7, 8
enrollment and work in Texas	9	12
home work	26	8
methods, beneficial results	46	6
training, value to military men	18	19
use of self-feeders for pigs	46	10
war work	13	1
work in South	18	20
workers, registration day in Mississippi	16	7
corn club, objections	41	10
dairy club work, in Texas	44	10
hunting moles, profits	5	13
interest in summer schools	37	15
planting sugar-beet seed for sirup	4	4
Serbian, education by farm bureaus, West Virginia	44	14
training camps	7	6
wheat clubs, enrollment	14	13
Boys' and girls' clubs—		
activities and profits	30	6
farm work	50	6–7
members in Philippines	34	11
Minnesota	43	10
singing farm songs	43	11–12
work and profits	34	10
work of members	43	10–11
Bran, poisoned, for Army worm	48	4
BRAND, CHARLES J.—		
address on marketing	26	7
Bureau of Markets, chief, resignation	47	8
statement on "short" selling of cotton	16	1
Bread—		
clubs, boys in membership	38	12
flour-restrictions removal	42	15
Bread—Continued.		
homemade, superiority of Minnesota	31	14
wheat and rye as basis	40	11
Breads, wheat flour with substitutes	12	1
Breeders'—		
associations—		
organization	41	11
work in Kentucky	50	6
live-stock—		
cooperation	6	8
Minnesota, cooperative work	6	9
Breeding—		
associations, community, work	33	9
community, elimination of varieties	33	9
help to dairy business, note	5	3
poultry—		
for increased weight	52	15
importance of stock	12	4
sheep—		
improvement shown at fairs	14	5
on Western ranches	52	16
starting a flock	8	4
Breeds—		
chicken, types, weights, and purpose	12	4
live-stock, standardizing	46	13
Breweries, change to maltose factories	40	15
Bridge, building permits necessary	10	2
BROGAN, WILLIE, club garden record	47	10
Broom corn—		
growing and use	35	10, 13
production increase in South, 1919	13	7
production increased, 1918	1	10
Brooms, making, home demonstration.	35	10, 13
Brush—		
burning—		
in clearing swamp land	14	11
precautions	10	7
cutting in clearing land, directions	6	13
mud, for boots or shoes	33	5
Buckwheat—		
honey plant	1	14
production increase, 1909–1918	27	24
Bugs, green, control, on plants	9	5
Building plans, farmhouses, Roads Bureau work	15	8
Bulbs—		
domestic, successive blossoming	34	11
growing for house blooming	14	4
flower, quarantine amendment	35	2
lily, American grown, superiority	34	11
Bull—		
associations—		
cooperative, benefits to dairy industry methods, etc	21	10
history and development	41	15
increase in number	4	5
Southern	35	16
usefulness, note	4	3
value to farmers	41	3–4
blooded, value to farm in Montana	31	11
Holstein, sale below value, cause	36	9
Bulletin board, use by farmers	10	1
Bulls—		
pure bred—		
profits on Maryland farms	39	8
improvement of herd	34	6
in Wisconsin	29	9
Bulls—Continued.		
registered, value fixing by cow testing	36	9
selection for beef breeding	31	4
BURDA, ROSE, club garden record	47	15
Bushel, measure and weights	52	6
Butchering, home, methods, profits, etc.	20	8
BUTLER, GRACE, poultry club record	47	10
Butter—		
bean, New Guinea, really a gourd	4	7
cold-storage shortage, January 1, 1919	26	6
mottled, description, etc	37	8
quality and price	30	15
shipments, advice of Department	3	5
standards, definition	30	4
stocks, Government, February 1, 1919	31	6
Buttermilk—		
day, observance	49	3
definition	44	3
food value, and forms	49	3
Buying, cooperative, saving in Louisiana	43	9
Cabbage, storage, suggestions to growers	20	5
Cake, baking, hints	44	9
Calf—		
club—		
pure bred, sale in Iowa, and prices	31	15
State championship, Washington boy	43	10–11
clubs—		
membership increase in Florida	43	11
work and profits, North Carolina	40	10
Indiana club boy's, gain per month	34	10
California—		
bird laws under treaty act	4	8
currant industry	27	4
farm bureau conference, trip	45	13–14
fertilizer, collection from cattle cars	16	7
fruit, in moving pictures	52	6
fruit-packing school, value	16	7
grading boys' and girls' club work	50	7
grain fields, protection from fire	5	12
grapefruit improvement, methods	17	12
lettuce growing	42	16
live-stock improvement	15	8
oranges, crop estimate, 1918	27	24
peach shipping, forecast	52	16
pig—		
clubs, organization	34	10
raising campaign	15	8
Placer County pledges food production	12	7
removal of sheep to, from drought regions	15	7
sugar-beet growing	46	5
Tahoe forest, area reduction	52	2
water supply for rice, work of county agent	15	7
Calves—		
beef, care of	44	6, 7
dairy herd, cautions	38	8
feeding—		
regulations	52	13
with grain mixture	37	16
production, care, etc	35	6
testing for tuberculosis	45	4
veal, price advance, 1912–1918	33	2

Subject.	No.	Page.
CAMPBELL, KENNETH, Texas, pig owner	37	6
Camps, training, for boys and girls	7	6
Canada—		
farm—		
land values, 1914–1918	38	9
survey work aid of Agriculture Department	4	4
wages, 1917–1918	38	15
grain-production increase, 1918 over 1917	25	7
immigrants from United States, discussion	45	1–2
live stock—		
farm value, 1918	38	2
increase, 1914–1918	25	6
migratory bird treaty	38	9
treaty with United States, game protection, laws	4	1
Candling—		
egg rules in Kentucky	47	9
eggs, discussion	3	4
Cane—		
growing for sirup, soil needs	39	5
harvest, labor shortage, supply from towns	6	10
sirup, production increase	29	15
sugar—		
acreage, estimate	6	5
acreage reduction for 1919	51	3
growing in Texas	27	9
use and value of by-products	39	5
Canned foods—		
stocks, Oct. 1, 1918	14	3
stocks reported, 1918	1	9
stocks, 1918	10	13
Canners, club ownership, and renting	32	13
Canning—		
center, establishment in Michigan	39	10
centers, school kitchens, note	3	7
club—		
patriotic work	49	7
products in demand	38	13–14
service flag sale	10	15
clubs—		
booths in market houses	41	15
South, records	44	15
work in Louisiana, 1918	37	6
work in Michigan	30	10
community—		
aid in food conservation, methods	24	6
work	47	15
compounds, restrictions	51	4
demonstration for teachers in France	44	3
demonstrations, North and West	24	5
fruit and vegetable, in Kansas	46	13
garden products	37	6
girl's—		
first year record	46	6
record	44	10
home—		
enormous output, preparation for	6	1
support of family	32	12
hospital	37	14
increase in demand for equipment	4	4
kitchens, community, use and value	30	11
poultry, methods and profits	24	4
supplies—		
ordering in advance	1	14
remarks	44	7
Canning—Continued.		
war-time, products, disposal	46	4
work—		
in large family	33	7
of liberty kitchen	7	6
Canning-club sample, hotel order	33	4
Cantaloupes, injury by nematodes	48	7
Car builders, aid by laboratory war work	47	5
Carbon—		
bisulphid, control of bean and pea weevils	1	13
disulphid—		
fumigation of chestnuts	14	5
use in control of bean weevils	4	7
Carcasses, animal, disposal of, to prevent disease	6	2
Carpet grass. *See* Grass, carpet.		
Carrion carriers, spread of disease	6	2
Cars—		
disinfection, Mexican border	1	7
loading with grapes, care, and methods	9	13
Castor beans, injury by army worms	4	5
Cats, bird-killing, destruction legislation	16	8
Cattle—		
accredited herds, value	45	9
barns, forest-fire burned, Minnesota	23	2
beef, profit increase, methods	40	6
bloating, cause and treatment	45	3
breeding associations, breed improvement, etc	33	9
breeds and numbers	50	13
dairy, shipments to France	47	1, 11
dehorning, reasons and methods	24	13
dipping—		
for tick control, Oklahoma	8	6
for ticks	30	16
in March	29 33	4–5 14
various States for tick control	41	9
dippings, vats, etc	40	16
fat, shrinkage in transit small	37	4
fattening with corn silage and velvet beans	6	6
feed, use of velvet beans	8	8
feeding—		
and fattening in South	33	16
in drought	3	1
feeds, supplemental, value	51	2
freight rates from Texas	5	14
grade, tuberculosis-free, certification	25	2
Holstein-Friesian, purchase by France	37	8
improvement—		
and increase, Louisiana	45	16
by tick control	41	11
in Louisiana	47	13
southern farms	46	3
work in Georgia	11	8
increase in France	52	3
interstate shipment, testing requirements	45	9
lightweight, meat use by housewives	6	7
loans, plans of War Finance Corporation	5	2
loss of cud, investigation	14	15
milk and beef yield, combination	43	3
owners, approval of tuberculin test	49	1–2, 8
Cattle—Continued.		
purebred, tuberculosis testing and certification	36	14
pure-bred stock, influence on sales	30	15
quality improvement	39	7
quarantine in North Carolina	52	8
raising, extent of industry	50	13
receipts, August, 1917, 1918	9	9
removal from drought-stricken Texas	9	7
retesting for tuberculosis	52	4
saving by weather-forecast warnings	15	7
scrub, elimination by bull associations	35	16
shipments to fairs, special order	10	2
slaughter, increase, 1917–1918	40	3
southwestern, shipping to market	1	7
tick—		
control	18 29	12 16
control progress	31	16
eradication, 1919	29	3–4
eradication, Alabama law	40	8
eradication in Florida	52	8
eradication in Oklahoma, etc	5	10
eradication work	44	13
quarantine area release, 1918	18	12
quarantine release for South Carolina, letter from Secretary Houston	21	7
quarantine replacement	32	8
tick-free, weather resistance	38	15
tubercular—		
killing indemnity	11	1
per cent in United States	11	1
shipping regulations	48	1–2
tuberculin—		
testing	50	3
tests	48	7
tuberculosis—		
control	34	5
control help by Department	22	9
control in Illinois	47	2
regulations	52	13
tuberculous, warning to buyers	40	3
water requirements	40	4
world numbers, United States, percentage	52	1
Cedar, red, effect on clothes moth	14	5
Cellars, potato, dirtiness as factor in waste	3	3
Cement mills, potash source	14	1
Census, agriculture, cooperation, Jan. 1, 1920	36	8
Cereals—		
equal value with all other farm crops	29	5
importation, restrictions	51	1–2
quarantine for disease prevention	32	1
smuts—		
control work	10	7
seed treatment for control	5	9
stock increase, 1919 over 1918	40	7
stocks—		
Mar. 1, 1918, 1919	36	7
on hand Dec. 1, 1918, with comparisons	23	6
on hand Nov. 1, 1918, with comparisons	19	6
other than wheat, 1918–1919	28	16
supply, in May, 1919	45	7
value of crop to farmers, 1918	31	10

Subject.	No.	Page.
Chalcis fly, control in alfalfa seed	37	16
Charcoal, manufacture improvement	47	6
Chautauqua crowds, exhibits for food conservation	6	8
Cheese—		
cold-storage shortage, Jan. 1, 1919	26	6
cottage—		
sales increase	1	6
uses, note	21	12
value, and bulletins	35	10
value as meat saver	39	10
value, comparison with meat	6	13
See also Cottage cheese.		
production increase, and adaptability	26	17
Cheeses, soft, making at home directions	6	12
Chemistry Bureau—		
appointment of dye experts	35	15
fraud-order work	40	16
Cherries, Oregon, pollenization lack	29	6
Cherry leaf spot, control	52	11
Chestnuts, wormy, treatment	14	5
Chicken—		
breeds, weights, and purpose	12	4
feeding, value of vegetables in feed	1	12
houses, mite control	34	3
Chickens—		
care in confinement	39	3
danger in cicades	46	14
depredations on gardens	7	5
feeding—		
frequency	52	16
on grasshoppers	47	4
varied ration	49	3
raising—		
by boys and girls	35	10
rules	47	16
selection for uniformity	47	9
supply in France	52	3
vermin control	15	5
Chicks—		
baby, orders for	44	9
dipping for lice	50	16
early hatching, importance	35	12
Child—		
survey, Boston, methods and scope	42	15
welfare, work of extension specialist in Minnesota	24	6
Children—		
food habits, teaching	46	4
health work of Department	44	16
help in saving cotton	2	7
Chilling room, use and value to poultry packers	20	7
Chimneys—		
defective, relation to rural fires	37	13
inspection on farm	37	13
Chinese, study of, county agent work	11	3
Cholera, hog—		
control by vaccination	31	12
control in Louisiana	47	13
control, note	39	7
immunization methods	32	9
spread by birds	52	13
vaccination for prevention	9	14
CHRISTIE, G. I., Assistant Secretary—		
address on food production and farms	26	5
address to farmers	35	3, 14
appointment as Assistant Secretary	9	11
statement on—		
farm method advance	48	1, 8
Victory bonds	40	1–2
Chroserma muscaetoxicum, lily sp., poisonous to cattle and sheep, warning	16	3
See also Lily.		
Chrysanthemum, gall fly, control	49	4
Cicada—		
emergence, 1919	44	8
feed for chickens, danger	46	14
history, injuries, and descriptions	32	5
infestation for 1919	27	16–18
See also Locust.		
Cisterns, description and use methods	21	13
Citrus—		
canker, quarantine by Australia	49	4
culture	49	4
growers, schools	44	16
City—		
men, aid in shocking wheat, Wyoming	8	7
workers, harvest labor	1	11
	2	5
	3	7
	4	3
	5	14
	7	8
	8	4
	9	15
	10	8
	11	3
	12	3
Civil-service examinations	13	2
	14	2
	15	6
	16	5
	35	15
	36	15
	38	3
	39	14
	40	11–12
	50	2
Clearing, swamp lands, cost and cooperation	41	6–7
CLEGG, RUE, pig-raising record	52	14
Climax baskets—		
description and specifications	9	13
loading in car	3	6
Clothes, made-over, home-demonstration	25	9
Clothing—		
care in buying, Home Economics advice	30	11
made-over, fashion show	12	7
making over, demonstration work	14	13
prices, 1914, 1918	38	15
Clover—		
alsike—		
poisoning, and cautions	40	5–6
use increase, seed demand, 1920	40	15–16
crimson—		
harvesting time, Southeastern States	40	5
pasture value	31	3
plowing under	40	5
demonstrations, results	45	10
leaf spots, description and cause	50	13
per cent of hay production	30	13
red—		
and alsike, seeding	31	3
cutting for midge control	43	7
seed shortage, 1919	27	24
seeding time	35	4
saving for seed	44	6
Clover—Continued.		
seed—		
condition in Europe	25	1
price doubling, 1916 to 1918	24	7
production, methods	40	5
stocks and shipments	3	7
sweet—		
seed production	28	7
value for hog pastures	39	3–4
value in crop rotation	26	19
value in soil improvement	25	10
with bluegrass	28	7
use of alsike recommended	32	12
worm, control in alfalfa	41	7
Clovers, honey value	1	14
Club—		
champions, college work	6	8
girls, canning for customers	43	15
leader, Massachusetts counties	34	9
members, pig exhibits	47	11
members, use of earnings	46	12
work—		
advantages to country boys	44	10
boys' and girls', in Philippines	43	16
college scholarships	34	12
effect on rural isolation	37	6
Mississippi girls	40	9
North Carolina sisters	43	16
record, in South Carolina	44	11
valuable for training	52	14
Clubs—		
boys' and girls'—		
activities	30	6
beneficial to farm homes	46	6
county leaders in Massachusetts	19	5
grading by score cards	50	7
war work	13	1
	26	8
	40	9–10
work	44	10–11
	46	6–7
	47	10–11
work in home and on farm	26	8
work results	52	14
boys', thrift of members	37	6
canning, southern records	44	15
character development	44	10
community, county work	45	12
health, organization, in Iowa	44	9
Coal, saving by use of wood	10	10
Cobs, corn, uses and value	36	14
COE, HOWARD S., death announcement, and sketch	15	5
Cold storage—		
available space—		
and distribution	24	13
statistics	19	9
butter, eggs, and cheese, shortage, January 1, 1919	26	6
Florida	43	9
holdings, February 1, 1919	30	13
meat holding, Jan. 1, 1919	41	8
space, availability	16	7
College—		
courses for boy and girl champions	6	8
men, military status	3	4
Colleges—		
agriculture, part of A. E. F. University	46	1–2, 9
land-grant, number and work	4	2
veterinary, attendance decrease	27	15
Colorado—		
agricultural advisers for draft boards	10	1

Subject.	No.	Page.
Colorado—Continued.		
bird laws under treaty act	4	8
pig club—		
work	47	11
prize takers	52	16
poisoning prairie dogs	21	8
Colts, fall—		
care	9	5
production, care, etc	17	11
Commerce Department, thrift work	44	11
Commission man, stockyards requirements and regulations	1	1
Community—		
canning	47	15
markets, waste prevention	9	13
Compsilura concinnata, beneficial parasite	52	5
Connecticut—		
agricultural advisers for draft boards	10	1
farm classification in card index	6	12
farmers' cooperative exchange, scope	42	16
"$1,000 poultry club."	32	12
Conservation—		
fats and oils	32	14
meat, milk, etc., need continuous	17	2
Contagious diseases, control among cattle	3	2
Containers—		
canning, ordering in advance	1	14
food and drugs, law requirements	40	10–11
potato	47	3
shipping, improvement	47	5
COOK, WALLACE, championship club honors, 1916, 1917, 1918	38	13
Cooker, fireless—		
demonstration	50	15–16
fire prevention	13	7
home-made, use for farmers' lunches and dinners	24	5
value as labor saver	18	23
Cooking—		
American, teaching foreign women	45	15
harvest, regulation by women, Iowa farms	6	8
lessons by scoutmasters	51	6
Cooks, instruction in saving	2	6
Coolers, iceless, for hogs, description and value	48	6
Cooperation—		
community, results in West Virginia	43	9
Department—		
and States, crop reporting	52	2
stores in demonstrating substitutes	14	13
extension work	14	10
farm buying and selling, work of county agents	21	9
farmers and city people	22	11
grain harvest, methods	27	3–4
in buying fertilizers saving in car space	1	10
Louisiana, buying and selling agencies	29	6
motor routes, development	8	2
shipping hogs, Arkansas and Louisiana	41	10
sweet-potato selling, Florida	41	10
thrashing and silo filling, in Ohio	29	6
towns and farms, results	47	13
wool marketing	52	12
Cooperative clubs, buying in Louisiana	39	6
Cooperative exchange, organization	42	16
Cooties. *See* Lice, body.		
Copper sulphate—		
use against watermelon rot	47	2
watermelon-rot prevention	46	5
Cordwood preparation, directions	10	11
Corn—		
acreage and cultivation	42	13
belt—		
combination farms, profitable	6	14
farm accounting, demonstration work	29	7
borer, European—		
control by clean-up methods	12	3
eradication, aid asked of farmers	16	2
See also Borer, corn.		
borer-infested, use as ensilage	42	6
borers, description, habits and control	42	6–7
clubs—		
northern and southern	40	10
rivalry in Iowa	40	9
seed corn growing	43	12
cobs, uses and values	36	14
contests, Indiana	45	11
crib, description and value	9	6
crop, Iowa, made possible by seed availability	6	5
cutting and shocking, cooperation of farmers	5	6
cutting for silage—		
remarks	2	5
stage	8	5
damage by borer	52	7
destruction by European borer	12	3
diseases, studies in Indiana	11	8
ears, protection, from weevils	7	3
exhibits and demonstrations in France	52	10
for ensilage, early planting	34	13
grading demonstrations	31	8
harvest—		
percentage of maturing crop	21	10
use of platform harvester	5	8
hogging down	8	2
husking—		
delay injurious	14	11
machine, labor saving	6	9
improvement	38	6
inspection, provisions of grain standards act	1	9
land preparation for wheat	5	11
marketable, per cent of 1918 crop	38	13
meal—		
picking for seed	1	3
standards hearing	14	7
stocks on Oct. 1, 1918	14	2
planting—		
early, for borer control	42	7
for silage	32	8
suggestions	3	1
pop, value in home	40	11
prices—		
Illinois and Iowa	47	11
variations	47	7
production, various years and States, fluctuations	5	16
quarantine in Massachusetts	11	6
rootworm, control methods	26	24
saving kernels by ear protection	6	11
Corn—Continued.		
seed—		
care and tests	24	7
census by farm bureaus	11	8
importance of supply for spring planting	1	12
insect control	1	3
liberal planting	39	12
points of excellence	3	8
preparation before planting	35	7
sale by New York farmers	11	7
selection and storage	10	4
selection in field	1, 5, 7	16, 6, 8
selection, picking, drying, and protection	1	3
supply for 1919	27	20
testing and saving	29	7
testing in Indiana	34	6
testing in South Dakota	29	7
shelled, shipping, maximum loads increased	1	9
shocking, care, to prevent waste	1	8
silage and velvet beans, cattle fattening experiments	6	6
sirup, sugar substitute in canning	5	13
stalks, burning for borer control	31	8
stocks—		
in 1918	10	13
on hand, Mar. 1, 1918, 1919	36	7
on Oct. 1, 1918	14	2
storing precautions	14	11
supply, in May, 1919	45	7
sweet—		
distribution of corn borer	33	14
earworm-resistant, seed development	23	6
quarantine in New Jersey	11	5
value, per cent of crop value, 1910–1914	28	16
weevil control by fumigation	38	10–11
white and yellow, production	33	3
world crop, United States per cent of, 1909–1913	14	8
Corn-belt, profits from sweet clover	26	19
Corncobs, use in manufacture of adhesive gum, etc	13	3
Cornstalk, borer, control	52	13
Cost, crop production studies	46	1, 10
Cottage cheese—		
campaign progress	7	7
market days	3	7
study by Mexicans	3	7
use as sausage basis	20	
Cotton—		
absorbent, use as milk filter	32	8
American-Egyptian—		
acreage, estimates	6	5
amount ginned, 1917–1918, and prices	9	4
marketing	47	15
production	37	15
success, Southwest	7	2
blossoms, honey source	1	14
boll worm, control by fumigation	9	16
change from raising	33	16
club, Louisiana, college award	34	10
crop surveys, and prices	9	4
crops, lint length, 1916 and 1917	12	5
danger of too great acreage	34	4
destruction by boll weevils	6	14

Subject.	No.	Page.
Cotton—Continued.		
distribution—		
and marketing, statement by Secretary Houston	21	5
control, committees	10	8
European need, forecast for 1919	26	14
exports, restrictions removal	18	17
farms, need of legumes	10	7
frost damage in	16	5
futures, hearings, 1918	12	8
gin fires, Texas, 1918	9	12
grade standards, establishment, sale prices, etc	21	6
growing, importance	30	5
low-grade—		
aid of Department	19	4
utilization, work of Department	21	8
outlaw fields in Texas, discovery by airplanes	30	9
picking—		
early and clean	7	3
prices, 1917, various States	14	8
price—		
no naming by Secretary Houston	9	10
	10	15
production—		
costs, studies	45	4
increase in, on less acreage	21	7
quotations, 1918, discussion	12	8
rust, caused by red spider, control	6	4
saving by women and children	2	7
Sea Island—		
acreage, estimates	6	5
standards, preparation by Department	5	8
seed—		
crop value, 1918-1919	30	12
saving by substitution of other crops	26	15
selling "short," prohibition, statement of C. J. Brand	16	1
single variety for community advantages	24	3
stalks, destruction for boll-weevil control	14	10
standards price, increase	3	4
supply and demand, 1919	30	1
variety selection, importance	21	15
warehouses licensed, remarks	2	7
world crop, United States per cent of, 1909-1913	14	8
Cottons, long staple, acreage, estimates	6	5
Cottonseed—		
meal—		
feed value	10	11
inspection	7	2
oil—		
injury by bleaching	37	11
production, 1912, 1917	37	4
refiners' conference	2	7
storage and care	14	10
Cotton-insects, occurrence in packing waste, control	9	7
County agent—		
aid to stock and crops	41	10-11
playwright	41	10
value to farmers, 1918, example	21	3
water supplying for California rice growers	15	7
County agent—Continued.		
work—		
in Iowa	43	9
study by Chinese	11	3
See Agent, county.		
County agents—		
advice to farmers	27	6-8, 10
aid—		
by Arkansas bankers	40	16
in live-stock production	22	15
in securing farm loans	50	9
to farmers	31	11
	34	6
indorsement by voters, North Dakota	20	2
north and west, increase, 1917 to 1918	21	11
praise for Kansas work	9	9
prejudice of farmers	24	12
scope of work	27	6
securing methods	9	15
work and results	21	2, 12
	39	6-7
work in South	25	13
work, various States	29	6-7
County bureau, farm exchange	40	16
Cow—		
returns for generous feeding	47	8
testers, women, various States	17	6
testing—		
benefit to creameries	45	15
value, comparison with cost	39	5
usefulness as food producer	2	6
Cowpeas—		
forage crop for lambs	49	4
planting—		
time	40	5
time and methods	35	4
Cows—		
association testing, increase in butter production	18	19
breeding, feed increase	31	4
butter-fat increase, methods	22	8
dairy—		
feed, home-made	7	8
guarding from milk-tainting weeds	36	12
testing by women	17	6
water requirements	14	16
Holstein, purchase and cost	29	14
housing, open-shed or dairy barn, value comparisons	18	21
milch, shipment, and water requirements	11	2
pasturing, time and cautions	40	4, 12
production increase by testing	34	6
testing—		
note	3	4
value in fixing bull prices	36	9
testing associations—		
and improvement	3	8
value to farmers	41	3-4
use as work animals in France	52	3
usefulness in conversion of inedible feeds into edible food, note	17	3
value of testing associations	31	11
watering in winter	10	13
Cow-testing associations—		
organization, etc	33	10
remarks	30	14
value to dairymen	34	6
Coyotes, hunting on forest ranges	12	5
Cranberry—		
freedom from gipsy moth	30	15
loss prevention	2	21
pests, flooding for control	9	4
CRANE & BRO., cattle-tuberculosis letter	50	3
Crate, hog—		
construction	52	6
description	50	16
Crates—		
potato, requirements	52	7
six-basket, strength tests	29	14
Cream—		
cheese, making at home, directions	6	12
contest, Oct. 1919	50	5
definitions and standards	44	3
souring at creameries	9	10
weight and fat content	24	8
Creameries—		
benefit of cow testing	45	15
conditions and practices	3	5
milk and cream souring	9	10
Creamery—		
Agriculture Department experiment	41	3-4
establishment by county agent	2	7
Credit unions—		
description and operation	36	6
law—		
authorization	36	6
value to farmers, statement by Secretary Houston	36	6
Creosote, fence post treatment	52	9
Crib-granary, corn storage, description	9	6
Crop—		
conditions—		
July 1, 1919	51	6
variations, 1918	24	14
diversification, irrigated farms	34	13
estimates—		
basis, number crop reporters, etc	22	6
commercial feature	16	7
field reports, issuance	21	10
State aid sought	16	6
production, cost—		
address by Secretary Houston	25	10
studies	46	1, 10
reporting—		
cooperation with States	52	2
improvement of service	19	9
reports, improvement plans	52	2
statistics, gathering methods	19	8
yields—		
averages by Crop Estimates Bureau	28	11
increase by green-manuring	9	13
Crop-damaging insects, control methods	16	8
Crops—		
acreage—		
estimate, 1917	6	5
foreign countries	45	8
increase, 1918	38	13
chief, States leading in production	1	10
dangers, comparison of pests with weeds	2	7
farm, acreage, 1918, estimates	40	7
farm, production, 1918, by States	23	5
foreign—		
reports	45	8
statistics	19	3
green-manuring, use and value	9	13

Subject.	No.	Page.
Crops—Continued.		
growing, and pig clubs	40	10
percentages exported, 1909–1914	14	8
production—		
and prices, 1918	28	10
and profit per capita, various countries	6	7
cost	34	15
protection from frost	10	5
saving by rodent control	8	7
saving by rodent poisoning	32	13
yield increase in South, causes	17	7,8
Cross-breeding, sheep, experiments	52	16
Cucumber—		
beetle, injuries and control	41	13
diseases, control by seed treatment and crop rotation	21	12
Culling, poultry, time for	44	7
Culls, live stock and poultry	10	5
Curb market, organization by women at Miami, Fla	4	4
Curculio, grape, control	38	14
Curing—		
grain sorghums	1	15
pork, demonstration	52	15
Currants—		
growing, and uses	34	7
importance in California	27	4
Cut-over land, acreage, various sections	6	15
Cutworms, bait, sawdust as bran substitute	24	13
Cypress, creosoting, results	52	9
Dairies, ice saving methods	45	2–3
Dairy—		
accredited herds, lists	7	6
booklets with charts, etc	44	15
cattle—		
purchase in United States	37	8
shipments to France	47	1,11
cow, salt requirement	10	7
cows—		
fall feeding	5	10
feeding and care	10	5
exhibits, National Dairy Show	11	8
farm, scales to boys' club	44	10
herds, certification	9	2
improvement, in Idaho	45	14
industry, stabilizing, conference committee	11	4
inspection, score-card value	29	5
products—		
European need, forecast for 1919	26	14
forecast for 1919	26	14
food and drug violations	43	8
increased production	6	6
market news, service extension	19	10
show—		
Columbus, Ohio, scope	11	8
time and scope	50	5
sterilization necessity	40	7
stock—		
purchase by irrigation project farmers	43	16
purebred, for Michigan farms	46	3
utensils—		
sterilization	14	9
sterilization value	40	12
work, war emergency	10	1
Dairy-farm, score cardi, nspection	29	5
Dairying—		
advantages	5	8
applying lessons	31	8
community methods	41	3–4
contest, Oct. 6–12, 1919	50	5
cooperative, community work	41	3–4
extent of industry	50	13
Dairymen, warning against tuberculous cows	40	3
Dakotas, North and South, bean for	36	14
Date palms, care, pruning methods, etc.	36	11
Dates, production, conditions favoring	36	11
DAVIS, MARVIN, club work in Alabama	47	10
Dehorning cattle, reasons and methods	24	13
Dehydration—		
vegetables, plants and methods	32	11
See also Drying food.		
Delaware—		
agricultural advisers for draft boards	10	1
bird laws under treaty act	4	8
farm bureau, food-production pledge	9	8
Farmers' Cooperative Association, success	47	12
Holstein cows, buying, and cost	29	14
pea-root rot	48	6
Demonstration—		
tractors	52	12
work—		
Americanization influence on foreign women	24	14
clubs, in South, 1918	48	7
distribution	33	4
indorsement	26	14
on farms, origin and development	4	2
studies in Indiana	50	9
Demonstrations, food conservation	5	12
Denaturing, milk, after condemnation	12	3
Desert, conditions in feeding stock	3	1
Digging sweet potatoes, time and method	1	12
Dip, chicken-lice control, formula	50	16
Dipping—		
cattle for tick control, Oklahoma	8	6
for cattle-scab control	29	12
Directory—		
Department	14	16
	6	16
Disease—	4	
prevention value, note	3	4
relation to live stock production	3	4
Diseases—		
animal, decrease	46	12
bees, diagnosis	9	16
corn, studies in Indiana	11	8
cucumber, control methods	21	12
live-stock—		
control methods	18	21
prevention and precautions	40	3
quarantine	34	13
poultry—		
control	13	2
description and control treatment	17	2
wheat—		
discovery in Illinois	43	6
identification	12	1
Disinfectant—		
poultry-disease control	13	2
seed potatoes, formula, etc	35	6
Disinfection, poultry-disease control, methods	13	2
Disulphid, carbon, use against corn-weevil	38	10,11
Diversified farming, benefits in South	45	13
Dockage, wheat, causes	47	7
Dodder, alfalfa enemy, control	50	7
Dogs—		
carrion carriers, spread of disease	6	2
loss per year	35	12
prairie, killing for crop saving	41	15
sheep killing, State control	29	1
Doors, improvement studies	36	4
Draft—		
advisers, agricultural, appointment	9	12
board, disposition of skilled labor	7	1
boards, agricultural advisers, by States	10	1,12
	14	3
deferred agricultural workers, rules	7	5
Drag, use in care of roads	17	9
Drainage—		
essential for good roads	32	15
road, necessity and methods	17	3
swamp lands, need of cooperation	41	6–7
tile, cost	27	6
Drama "The Long Trail," Extension workers	45	11
Dried apples, demand and supply	5	11
Driers—		
community, aid by training teachers	30	11
grain—		
capacity, United States	7	2
use in treatment of seed for smut	5	8
Drought—		
areas—		
grain loans	12	3
grain loans to farmers	14	12
loans to farmers, circular	5	4
control by irrigation	7	6
effect on feeding live stock	3	1
loans, distribution, etc	20	3
loss prevention in Nevada	28	3
regions, visit of Secretary	9	1
Drugs—		
hearings on new rules	40	8
testing for Army	9	12
Drying—		
food, industry, establishment by law	14	15
foods, conditions governing	33	15
home, use of fireplace	25	9
Ducks, mallard, superiority for farms, studies	24	14
Durum wheat, production and exports	14	13
Dust—		
box, need in poultry house	43	14
boxes for hen yards	48	4
explosions, control	39	13
Dyes, examination and testing	35	15
Dyestuffs, manufacturing experiments	51	4
Dynamite, use in clearing stumps	6	15
Earthworms, extermination on lawns	45	15
Economics, land, studies	45	1,7
Economy, buying and using	44	9
Education, agricultural, discussion by Secretary Houston	4	2

Subject.	No.	Page.
Eelworm disease—		
danger, and control in wheat	12	1
of wheat, study and control	5	1
Eelworms—		
injury and control	35	15
wheat, description and life history	12	7
Egg—		
circle, Arkansas, success	47	14
day, Oregon, operation	46	12
substitutes, misbranded	22	16
Eggs—		
bad, grading in Kansas	37	10
candling, discussion	3	5
China to New York City, condition, etc	36	13
cold-storage shortage, Jan. 1, 1919	26	6
dried, increased production	6	6
grading in Kansas, 1916–1918	37	10
handling demonstrations	47	9
hatching, care	18	11
improvement—		
by candling campaign	3	8
campaign, Kansas	49	3
increase in supply, remarks	3	6
infertile—		
advantage in egg preservation	50	11–12
campaign in South	38	13
production, etc	35	5
laying contests	40	10
losses reduced by candling	3	8
marketing hints	16	3
number laid by poor and good hens	14	12
preservation—		
in waterglass	39	13
universal practice	14	12
preserving, methods	2 46	4 9
production—		
increase by poultry studies	41	14
maxims	17	15
per hen	48	2
storage requirements	39	16
white and brown, marketing	40	14
yolks, value and uses	40	7
Electricity—		
farm home	45	6
frictional, cause of cotton-gin fires	42	8
Elk herd, protection	47	6
Elm wood, strength and value	9	11
Employment committee, soldiers'	35	1, 16
Engines, gas, balking remedy	28	6
England, foot-and-mouth disease	12 37	1 8
Ensilage, beet tops, value per acre	16	7
Entomologists—		
study of body lice	7	6
war service	13	6
Erosion—		
cause by excessive grazing	10	9
control by terracing	47	13
soil, control by terracing	14	10
ESTABROOK, L. M., Chief, Crop Estimates Bureau, statement on food production	19	1
Europe—		
field seed, needs and varieties, 1920	41	1, 5
importations, restrictions	51	1–2
seed conditions, investigations	25	1
Ewes, selection for next year's lambs	1	8
Exchanges, farmers', success	45	15
Exhibits—		
agricultural, return from France	52	10
Government, places, dates, and scope	50	14
Explosion, starch-mill, investigation	44	8
Exports, pork, Oct., 1917 and 1918, comparison	14	6
Extension—		
schools, study of bookkeeping	39	13
service—		
expansion, 1914–1918	23	1
organization	4	2
work—		
boys, and girls, organization	46	6
cooperation with West Virginia, plans	25	4
increase of forces, county agents, etc	4	3
1919 plans	22	2, 14
scope and workers in West Virginia	17	10
war-time growth, extract from Secretary's report	19	6
workers—		
cooperation with farmers	14	10
farm-bureau play	45	11
sheep and goat breeding	14	5
Factories, condensed milk, inspection	5	15
Factory worker *v.* food producer	13	4
Fairs—		
Cattle-tick zone, cattle shipment permits	10	2
community, lessons in conversation	2	7
State and local, Department exhibits	50	14
Fall—		
early, season for starting flock of sheep	8	1
gardens—		
planting dates in various zones	1	5
preparation for	1	4
planting—		
apple and pear trees	14	14
of bulbs	10	11
plowing for spring wheat	5	6
preparation for spring gardens	14	7
Farm—		
accounting, demonstration work, corn belt	29	7
animals, poisoning by oak leaves	38	11
boys, verses on grievances	45	12
buildings—		
care and repair time	31	9
concrete construction	17	8
plans, preparation by Roads Bureau	15	8
bureau—		
fertilizer gathering from cattle cars in California	16	7
food production stimulation	7	6
fruit-packing school, in California	16	7
increase, and aid to emergency work	4	4
bureaus—		
aid in fighting fires in green fields	5	13
California farmers, service	24	2
development	27	7, 8, 9–10
Farm—Continued.		
bureaus—Continued.		
fire-loss prevention	15	8
hog-plague control, work in 1918	22	8
increase in Iowa	45	10
increase in New York	42	16
inquiries from abroad	27	8
Iowa	11	7
labor mobilizing	8	7
membership—		
and work for increased production	5	6
for clubs	50	7
gain	43	9
in various States	22	1, 5
increase	46	12
per cent	50	1
men and women membership	30	10
number, 1918	27	7
organization—		
for 1919 food production, statement of Secretary	15	1
for war farming	6	8
praise for Kansas work	9	9
support of war program	15	7
value—		
citation, of Gov. Holcomb	45	14
in food production	22	1, 5
in rodent control	8	8
clubs, county organization	31	4
crops—		
acreage, and production, 1918	19	1, 13
acreage, 1918, estimates	40	7
distribution	27	2
increase in Florida	31	11
irrigated lands, value comparison	32	10
most prominent before war	33	8
production cost	34	14, 15
suitability for silos	35	5
war production in New England	42	9
demonstrations, work of county agents in South	23	3
economist, appointment of Francis W. Peck	34	16
enterprise, costs, scope, determination methods	34	15
equipment, profiteering defined	3	3
exchange, organization in Iowa	40	16
exhibits for Venezuela Exposition	38	6
exhibits, preparation and shipment	27	3
extension, work of county agents	43	9
fires, relation to poor chimneys	37	13
gullies, prevention	31	3
help—		
draft advisers, by States	13	8
keeping methods	22	4
homes, plans and descriptions	42	10–11, 12, 13
implements—		
demonstration	46	13
efficiency, "repair work"	31	11
rust and decay	39	7
kitchens, improvement	12	2
labor—		
aid of Department in furnishing	19	7
aid to farmers in securing	26	15
condition improvement, various sections	41	14
draft advisers, appointment	15	6

Subject.	No.	age.
Farm—Continued.		
labor—Continued.		
offer to soldiers by Agriculture Department	36	13
per cent of soldiers returning	43	2
probable lack in 1919	26	11
return of soldiers, statement by Secretary	41	16
shortage in South, and sources of supply	5	5
skilled, deferred draft	7	1,5
study	46	10
supply in Illinois	3	6
supplying from county jails, etc.	26	18
lands—		
Canadian, value per acre, 1914–1918	38	9
value variations in relation to farm products	38	8
life—		
betterment, studies	46	10
problems, conference and participants	42	1–2
studies by Charles J. Galpin	42	8
loan, value to farmers	19	10
loans—		
aid of county agents	50	5
drought States, distribution	20	3
drought-stricken section	9	7
machinery, time for repairs	31	9
Management—		
Acting Chief, appointment	26	7
Assistant Chief, appointment	36	10
Chief, appointment	34	1,14
committee	34	14
contest in Montana	45	16
reorganization	34	14
markets, development in foreign countries	21	1
methods, new *v.* old	48	1,8
necessities cost, 1914–1918	38	15
operations, North, West, and South	40	4–7,12
organization, equipment, practices, etc	34	14
prices—		
influence of food distribution on retail prices	15	4
trend, by months	16	8
produce, weekly reports, value	37	14
production—		
distribution, farm to consumer, studies	15	4
helping women to sell, in New Hampshire	36	15
price-increase	38	5–6
prices in relation to farm lands	38	8
production increase in South, 1910–1918, causes	25	12
statement of Secretary Houston on cost studies	17	1,7
profits—		
effect of farm size	16	5
increase, methods	14	14
resources, card index, Connecticut	6	12
survey work, aid of Department	4	4
tenancy, increase, investigation	45	1,7
tenant houses, plans, description, etc	26	12,14,15
tractors—		
description, uses, etc	42	11–13
early use location	40	16

Subject.	No.	Page.
Farm—Continued.		
tractors—Continued.		
lessening trouble by farmers	34	12
production estimate for 1919	36	12
use in rice growing	43	9
unions, saving to members	31	12
wages, in Canada, 1917–1918	38	15
winter repairs	29	1
woodlands, handling, income, etc	39	15–16
women, accounts	8	1
work—		
activities of Utah girl	27	21
securing for soldiers	35	1,16
soldiers, opportunities for	39	12
workers, bunk-house plans	38	4,5,6
Farm-bureau members, per cent of Nebraska farmers	31	15
Farmer, instruction to hired help	10	1
Farmhouse—		
building, description, and plans	50	10–11, 12,13
convenience, and cheerfulness, necessity for	24	6
Farmers—		
accounting system, need	40	3
achievements in food production	4	3
aid in thrift campaign	38	1,14
aid to by Personal-credit Unions	19	8
American, war record	21	2
appeal for war funds, by Secretary Houston	15	2
bond buying	40	1–2
city markets, establishment	29	14
clubs, for soldiers, A. E. F	46	2
conditions, birthplace, etc	20	2
contracts for firewood	10	11
cooperation—		
in rodent destruction	14	9
with business men	35	3,14
with Wisconsin merchants	25	3
Cooperative—		
Association in New Jersey	45	12
meat shop	6	15
thrashing	44	5
drought-stricken delegation to Washington, D. C	5	13
efficiency methods	39	5
emigration to Canada, discussion	45	1–2
exchanges, success	45	15
farm necessities, cost, 1914–1918	38	15
grain loans—		
circular describing	5	4
in drought-stricken sections	1	1
hot meals by use of home-made fireless cookers	24	5
industrial group, importance	47	11
instruction week, Louisiana college	41	10
loan distribution	3	6
loans, War Finance Corporation, advancement	1	14
message on wheat, from Secretary	2	8
native element predominant	47	8
organization, tendency	47	11
organizations, help by county agents	22	10
plans for 1919 season, North, South, and West	18	14,18
praise from Gen. Pershing	14	1
prices—		
fluctuations	5	16
received and paid, 1914–1918	38	11
raising home food supplies	4	4

Subject.	No.	Page.
Farmers—Continued.		
receipts and expenses	38	16
relation to world war	2	1
resolute heroism in service of country, citation	4	7
war pledge to Government	3	5
war record, 1918, report of Secretary	19	1,13
Farming—		
advancement during war	48	1,8
American, place assurance	26	1,13
and food production, notes	9	11
balanced, importance	30	5
diversified—		
benefits in South	45	13
Mississippi County, results	47	13
plan *v.* cotton in South	41	11
value in the South	47	12–13
early superstitions governing	32	6
exhibits, shipping to France	35	8
in Louisiana, success of agents	47	13
looking forward in	35	4
methods, film exhibition in Russia	23	1
notes	16, 19	5, 7
object lesson to students	34	9
operations—		
North, West, and South	31, 44	2,3,4,12; 6,7,12
plans, 1919	27	12,18
opportunities to city and village dwellings	15	4
planning for 1919	18	14,18
plans for 1919	14	10
studies in four States	50	9
study in school for A. E. F	46	1–2,9
training camp for clubs	43	10
Farms—		
combination, corn belt	6	14
development from Government land	38	3
electricity from small streams	45	6
laborers, need, wages paid, etc	39	13
numbers, increase, etc	20	2
organization, conference with Secretary, members	39	8
return of soldiers	35	1,16
school credits for home work	10	2
size, responsibility for farm profits	16	5
song singing as aid to club work	43	11–12
southern, food production	30	1,12
surveys, by school children	29	8
Fats—		
animal—		
exports, war-time decrease	35	2
increase, 1912–1917	34	3
kinds and food value	42	15
cooking, stock increases	9	16
production increase, methods	32	14
stock increase, Jan. 1, 1918–1919	33	10
Fattening hogs, value of self-feeders	42	14
Feed—		
beef calves	44	6,7
calf, use of grain mixtures	37	16
cattle, use of velvet beans	8	8
cottonseed, nutritive value	10	11
cutting machine for yucca	3	1
dairy cows, home-grown hay, etc	7	8
growing—		
for pigs, Florida	43	10
in South, letter from Secretary Houston	24	1
hog, study of use of garbage	3	7

Subject.	No.	Page.
Feed—Continued.		
laws, recommendations of Secretary	19	5
poultry—		
relative valve of cereals	3	3
variety needed	49	3
production campaign	34	6
shortage prevention	40	6
stock—		
soy bean value	6	7
use of yucca	3	1
winter, use of silage	7	3
Feeding—		
cattle, experiments with corn silage and velvet beans	6	6
chickens, vegetables value in diet	1	12
dairy cows in fall	5	10
hogs—		
Florida	45	10
grain and pasture, profit	8	4
live stock—		
28-hour regulations	42	14
stinginess	47	16
with soy beans	14	8
pig	47	3
scientific, of animals	47	16
standards, application	47	9
stuffs, exports, increase and decrease, 1909–1918	24	9
Feeds—		
adulteration and misbranding	43	8
green, for hogs	49	3
hog—		
remarks	10	14
with supply of protein	2	1
home-grown, for hogs	47	12
prices, foreign countries	21	8
selection for stock	48	2
stock adulteration	42	4
winter, cooperative buying	14	10
young pigs	44	7
Feedstuffs—		
consumption by months	50	4
price, comparison with live-stock prices	28	2
Fence posts—		
creosote treatment	52	9
preservation, treatment	29	13
Fences—		
pasture repair	44	12
protection of gardens from chickens	7	5
Fertilizer—		
buying, larger orders to save car space	1	10
gathering in California from cattle cars	16	7
laws, recommendation of Secretary	19	5
misbranding, sale prohibition	27	24
phosphate rock, remarks	2	5
prices, stabilizing, in Ohio	45	16
purity retention, stockyard methods	50	15
retail prices, variations	42	1, 7
sale to farmers, forecast for 1919	26	15
value of seaweed	39	12
wheat, at seeding time, value	4	3
Fertilizers—		
cooperative buying by farmers	29	15
early ordering	33	13
fall and spring prices	50	4
prices—		
and control regulation	21	9
schedule	46	11
supply and prices, 1919	27	15
Fertilizers—Continued.		
use methods, studies	26	24
work of county agents	45	12
Fertilizing wheat, to increase yield	5	16
Fescue, tall, value as grass crop	44	4
Feterita, spur—		
description, etc	37	2
superiority	35	12
Fibers—		
binder-twine, source, development	24	2
world demand, studies by Agriculture Commission	24	15
Fields, selection for crops	10	4
Figs—		
home-grown, varieties	21	13
planting and cultivation	38	7
Films—		
agricultural, in motion-picture exposition	12	7
production, subjects and distribution	11	1
Filter cloth, use and value for milk filtering	32	8
FINDLEN, HELEN, club leader in one year	46	6
Fire—		
control by Forest Service in West	3	6
prevention—		
mills and elevators, help needed	33	9
of losses by farm bureau insurance companies	15	8
protection—		
grain fields	6	16
grain fields, California	5	12
National Forests, funds, etc	5	9
need for forests	33	15
Fireless cookers—		
ice saving	44	7
prevention of fires	13	7
Fires—		
cotton-gin—		
control by wire grounding	42	8
losses, causes, and control	17	1
Texas, 1918	9	12
danger reduced by concrete construction	17	8
destructiveness	19	7
fighting in grain fields, aid of farm bureaus	5	13
forest—		
control, cooperative work in California	4	5
Federal aid	27	5
location with airplanes	50	15
loss reduction	50	8
prevention	10 12 41	6 15 2
lightning, annual losses	40	15
mill, control success	39	13
National Forests—		
remarks	27	2
severity, 1918, and control	21	4
woods, need of cautions	40	2
Firewood—		
cutting—		
by machinery	10	10
machinery	38	9
price increase and crop value	11	3
production and crop value	39	12
selling by weight	32	9
use instead of coal	13	1
Fish—		
frozen—		
food value, etc	32	13
superiority	33	3
heads, poultry feeding	49	8
meal as protein hog feed	2	1
ponds, stocking, aid of county agents	30	10
shipments as war food	2	6
shipping from Gulf for Mississippi Valley	3	2
Flax—		
acreage increase urged	35	4, 6
disease immunity, and value	40	4
disease-resistant, development	1	6
Flaxes, "new varieties," false claims	36	10
Fleas—		
bites, control remedy	22	11
spread of maladies, and control	22	11
Flies—		
bat, description, and control	50	16
control—		
hints	44	7
on horses	43	5
Flooding, cranberry-insect control	9	4
Florida—		
agricultural advisers for draft boards	10	1
army-worm control work	4	5
bankers' aid to corn-club	50	14
bird laws under treaty act	4	8
calf clubs, membership increase	43	11
cold-storage houses	43	9
cooperative shipment of pig club boys	43	11
food value of milk for children, tests	31	15
hogs, feeding and marketing	45	10
increase of hogs and farm feed	31	11
live-stock industry	11	8
meat-production increase	39	13
Miami, curb market, management	4	4
pig feed, growing	43	10
pig-club increase	47	11
pig-club work	40	9, 9–10
pigs, raising	50	6–7
poultry management	43	9
pure bred pigs for boys and farmers	46	6
sugar production, 1919	29	2
swampland reclamation	6	14
sweet potato selling, cooperation	41	10
tick eradication	52	8
Flour—		
stock reported, 1918	1	9
stocks—		
Jan. 1, 1918, 1919	28	16
on hand, Dec. 1, 1918	23	6
on hand, Mar. 1, 1918, 1919	36	7
on hand Nov. 1, 1918, with comparisons	19	6
on Oct. 1, 1918	14	2
supply in May, 1919	45	7
wheat, substitutes, chemical composition	12	1
Flours—		
stock increase, 1919 over 1918	40	7
various, value as wheat substitute	12	1
Flowers, selling for French wounded	13	7
"Flu," horse. *See* Influenza.		

Subject.	No.	Page.
Fly—		
bat, control	50	16
control campaign, Oregon	14	13
Hessian—		
description, history, and habits	36	16
extermination campaign	22	15
injury to rye compared with wheat	39	3–4
invasion fears for 1919, control, etc	36	16
relation to wheat sowing time	32	6
Fodder, corn, dryness in silage, remedy	2	5
FOLEY, EDWARD A., appointment as agricultural trade commissioner	44	2
Food—		
adulteration by saccharin	14	11
Administration—		
and pork prices	10	3
order releasing meat	4	3
and Drugs Act, violations, and scope	42	2
animal—		
need and value	5	7
need for growth and development of body	6	11
bacteria, control by cooking	39	3
commodities—		
stock increase, 1919 over 1918	40	7
stocks, January 1, 1918, 1919	28	16
stocks, March 1, 1918, 1919	36	7
stocks on hand November 1, 1918, with comparisons	19	6
conservation—		
demonstrations	5	12
for Polish women	19	2
importance	10	4
Iowa records in flour and sugar	6	8
lesson to children	34	12
meat, milk, etc., need	17	2
rules for housekeeping	10	6
window exhibits for Chautauqua crowds	6	8
crops—		
bushel weights	52	6
development in Alaska	24	13
increase percentage in Porto Rico, 1918	24	3
drying—		
conditions governing	33	15
industry, establishment by law	14	15
energy builder	43	12
growing in South, letter from Secretary Houston	24	1
house supply, raising by farmers	4	4
increase by irrigation	45	16
inspectors, warning on olive oil	12	2
knowledge, teaching to foreign born	35	10
law, violation	29	12
lessons in department stores	2	6
need of gardens for increase	14	10
price, advance, 1914–1918	39	13
production—		
decrease, effect on city dwellers	15	4
drive, use of motion pictures	12	6
effect of labor situation, etc., address by Assistant Secretary Christie	26	5
emergency act, administration	4	3
for family support	30	1, 12
for war needs, address by Secretary Houston, November 20, 1918	18	1, 5
Food—Continued.		
production—Continued.		
increase	27	6
increase in city gardens, methods	17	13
increase in insular possessions	22	9
increase in New Hampshire	5	13
increase in South	22	16
increase in war time	5	12
increase methods	20	5
information to city people, note	22	9
labor of conscientious objectors from cantonments	6	13
notes	16	5
official, supervision in Germany	17	2
1919, organization, statement of Secretary	15	1
pledge of Delaware	9	8
record of Arkansas women	37	15
1918, remarks	19	1, 16
Secretary's circular	27	1, 4
stimulation by farm bureaus	7	6
war program, support of farm bureaus	15	7
women's share in war	3	2
work of club boy in Massachusetts	13	4
products—		
canning and drying, production increase in Illinois	30	10
hoarding	9	5
inspection on markets	30	14
stored, saving methods	22	11
saving—		
colored girl's clubs	44	11
in South, work of clubs	25	13
work, Iowa	6	9
spoilage studies	31	14
stocks, wheat, etc, 1918	10	13
storage places, cleanliness	35	15
supplies, production increase, statement of Assistant Secretary Ousley	15	1
supply, war service	7	5
survey, Oct., 1918, wheat stocks, etc.	14	2
thrift in homes	43	5
values, teaching by school lunches	46	12
winter supplies, saving	44	7
world demand, studies by Agriculture Commission	24	1, 15
world need, statement of Assistant Secretary Ousley	15	1
Food-control—		
act, citation in regard to wheat	6	1
bill, effect on agriculture	4	3
Foods—		
adulteration—		
and misbranding	43	8
kinds and methods	42	2–3, 4
containers, law requirements	40	10–11
hearings on new rules	40	8
keeping of various kinds	39	2
labels on packages	12	2
misbranding, lessening by food laws	42	2–4
package, label requirements	40	10, 11
Foodstuffs—		
prices in foreign countries	21	8
supply in May, 1919	45	7
world exports, 1916–1918	15	1
Foot-and-mouth disease—		
control work	27, 37	24, 8
precautions	12	1
Forage—		
crops—		
feed value for sheep	41	2
grain varieties	41	2
hogs, value	10	13
summer planting	44	6
use for summer hog	40	4–5
green, for hogs	8	2
plants, collection on National Forests, number	13	6
Forecast—		
peach shipments	52	16
sugar in 1919	52	16
Forecasts—		
fruit, distribution to growers	20	6
weather, value to shippers	14	13
Forest—		
conservation need	46	4
fires—		
campaign, Governors aiding	5	12
1918, causes	50	8
fighting by airplanes	37	1
prevention	41	2
guards, additional, needs	19	8
Inyo National, area elimination	41	9
lands, cut over, use for sheep grazing	3	7
Products Laboratory, for war work	47	5–6
Reservation Commission, purchase of additions to eastern forests	21	15
Service—		
aid in war work	10	16
cooperation with other departments	21	4
fighting of fire in West	3	6
help in winning war, annual report of Forester	21	4
in California State Council of defense	5	12
members in military service, stars in flag	4	5
Forestry—		
compulsory, need urged by Forester	33	14, 15
conference studies	42	16
national, patrolling by airplanes	44	8
problems, need of Federal assistance	44	1, 14
troops, return from France, date	37	5
Forests—		
care by aviators	39	12
community ownership, for fuel needs	28	3
farm, care and management	40	6–7
fire protection, need for additional guards	19	8
municipal ownership for fuel needs	28	3
National—		
additions, various States	51	3
airplane-patrol service	42	7
area changes	49	8
area elimination, orders by President	22	15
area reduction	33	11
area reduction in Alaska	43	16
eastern, land purchase, various States	21	15
experiments with wireless telephone	43	12
fire protection, funds, etc	5	9
fire protection, need	33	15

Subject.	No.	Page.
Forests—Continued.		
National—Continued.		
grazing permits, Secretary's order	20	2
receipts, 1917–1918	4	5
	5	11
recreation uses	44	13
roads and trails, appropriations	32	16
sources of domestic water supply	32	10
use as "vacation land"	51	7
value to visitors, 1918	26	16
purchases, delays and causes	37	5
ranges, wild animals, control	12	5
renewal, importance	39	1–2
resources becoming exhausted	46	4
Formaldehyde—		
barley-disease control	1	7
use in control of grain smut	1	11
use on grain seed for smut	5	9
Foulbrood, European, of bees, control	5	16
Fowls, need of dry litter	42	5
France—		
Beaune, A. E. F. University courses	46	1–2, 9
exhibits of American agriculture	52	10
High Commission requests agricultural experts from Department	5	1
imports of meat and live animals	52	3
learning home canning from United States	44	3
live stock conditions and needs	52	3
Macon Academy sends Fourth of July greeting to Department	6	9
pork situation	52	1, 2
purchase of American dairy cattle	47	1, 11
Fraud orders, work of Drug Division	40	16
Freight, rates on cattle from Texas	5	14
Frost—		
charts, interest and value	10	16
fall—		
dates for different zones	1	4
dates in West	1	5
killing, average dates	33	11
Fruit—		
baskets, strength tests	29	14
California, in moving picture	52	6
growers—		
aid of county agents	6	9
collection of fruit surveys	20	5
packing, school, farm bureau work in California	16	7
packing-house organization	27	1
pits, collection, letters from secretaries	21	11
pruning and spraying in Tennessee	29	7
shipping, loading Climax baskets	3	6
sprays, facts regarding	3	8
stocks, growing studies	32	2
surveys, distribution to fruit growers	20	5
thinning	44	12
trees, mice-gnawed, saving	31	13
Fruits—		
consumption, in United States	47	16
early spring planting	32	3
home-dried, use as candy substitute	15	7
Mexican, prohibition of	11	8
package form, label requirements	42	16
stone, injury by spraying	27	21
value of strawberries	41	11
varieties and supply	32	10
Fuel—		
laying in supply	10	5
supply, lime manufacturers on preferred list	4	6
utilization of log heaps	40	7
wood, farm product	10	11
Fumigant, formula for corn weevil	38	10–11
Fumigation—		
beans and peas for weevil control	1	13
bollworm control	30	15
chestnuts for worms	14	5
comb honey for wax moth	52	8
houses, Mexican border	1	7
Mexican border, uses and needs	9	16
rice moth	52	4
seed corn, directions	1	3
use against corn weevils	38	10–11
Fungicides—		
law violations and prosecutions	20	4
use in cleaning potato cellars	3	3
FURMAN, HAZEL, canning club honors	43	16
Furnaces, blast, potash output	14	1
Futures, cotton, hearings in 1918	12	8
Gall fly, chrysanthemum, control	49	4
Galls, eelworm, description	12	1
GALPIN, CHARLES J.—		
appointment	42	8
head of farm-life studies	46	1
Galvanized vessels, warning as to use	3	3
Game—		
information from hunters	48	7
law, migratory birds, open seasons	13	8
laws—		
conflicting dates	9	3
in States conforming to Federal laws	14	13
new, under U. S.-Canadian treaty	4	1
observance requirements	9	3
spring-shooting prevention	33	12
summarization	26	17
summary, nineteenth annual	14	5
under migratory bird-treaty act	4	8
United States-Canadian treaty	4	8
protection—		
directory, 1918	10	7
legislation needs	18	24
sale, laws under migratory bird treaty	4	8
sales, treaty prohibition	9	3
spring killing	33	12
Game-bird farming	39	16
Garbage, use as hog feed, study	3	7
Garden—		
clubs—		
Iowa, membership increase, 1919	48	8
Nebraska, products value, 1918	43	10
Nevada, work	34	10
opportunity for children	39	9
demonstration, on Boston Commons	47	15
making	43	11
seeds, home-grown, saving for next crop	5	14
small—		
costs and profits	47	10
yield of	47	15
spring, beginning in fall	14	7
Gardeners—		
precautions against European corn borer	12	3
warning against potato wart	13	5
Gardening—		
notes	35	6
v. fishing, value of Nebraska gardens	43	10
Gardens—		
back-yard, in Chattanooga, 1918	33	5
city—		
cooperative food production in Tennessee, methods	17	13
increase for 1919	40	16
profitableness	32	10
farm homes, increase	7	8
home—		
children's parade	40	9
source of food	14	10
successive crops	44	7
work of club boys	50	6
mining-camp, club work of children	40	9
protection from chickens	7	5
success for 1919	33	14
suggestions for South	31	2
war—		
aid to canteen work	16	6
continuation	37	15
well-planned, necessity	40	4
winter—		
popularity in Georgia	32	13
South and North	1	4
Gas—		
engines, balking, remedy	28	6
masks, fruit pits and nutshells, uses	8	7
Georgia—		
agricultural advisers for draft boards	10	1
cattle dipping for ticks	48	3
cattle improvement	11	8
farm labor supply	5	5
game laws under treaty act	4	8
peach shipping, forecast	52	16
pig-club work	46	6
pork increase	34	13
road projects, April, 1919	49	6
sugar cane acreage	14	8
tick-eradication progress and quarantine area	16	6
winter gardens, profits	32	13
Ginning, cotton crop, 1917–1918	9	4
Gipsy moth—		
absence from cranberry	30	15
laboratory inspection, results	7	7
Girls—		
club methods, beneficial results	46	6
clubs—		
activities	39	6, 7, 8
home work	26	8
war work	13	1
colored, food saving, in club work	44	11
gardening and pig-club work	1	7
planting sugar-beet seed for sirup	4	4
sewing club, Missouri, prizes	34	10
tractor operators, offer services	5	3
training camps	7	6
work in homes, plans by agents	24	5
Glanders, test	33	9
Glucose, manufacture from corncobs	13	3
Glue, waterproof, development by war work	47	5
Goats—		
breeding and care	33	2
grazing, bedding grounds, etc	33	2
high-grade, advantages, etc	33	3
pasturing new lands	6	7
value in clearing land	26	16

Subject.	No.	Page.
Gooseberries, growing, and uses	34	7
Gopher, control in grain, Montana	8	8
Gourds—		
edible, advertised as Gigantic Guinea butter bean	4	7
fictitious claims, and fraud	24	12
Government—		
bonds, trading bogus stocks	33	8
exhibits, various departments	41	14
exhibits, various departments, at fairs	13	7
Grades—		
cotton, and Government contracts	12	8
grain, appeals, instructions	36	15
rice, establishment	10	15
wheat, and classes	47	7
Grading—		
grain—		
by inspectors	46	8
demonstrations	49	6
rules for yellow oats	42	5
Grain—		
acreage increase in Algeria, opportunities	24	8
bread, for next year	10	4
bugs, control	52	11
destruction by rodents, control work	8	8
driers, capacity, United States	7	2
driers in treatment of seed for smut	5	8
farm storage, Department plans	16	3
feeding to calves	37	16
fields, fire protection	5 6	12 16
grade appeals, instructions	46	15
grading—		
by inspectors	46	8
demonstrations	49	6
in North Dakota	31	8
Department, Sioux City, Apr., 1919	36	8
inspectors' reports	27	4
traveling schools in Ohio	42	15-16
growing in South, increase	45	13
infected, shipping regulations	51	4
injury by grain bugs	52	11
inspection—		
and grading	38	1-2
appeals and rules	34	8
loans—		
as aid to farmers	14	12
to drouth sufferers	1 5 12	1 4 3
losses from smuts, prevention	1	11
needs by hogs on pasture	8	4
production, leading States	1	10
saving—		
by gopher control	8	8
importance	44	6
teaching in schools	44	12
seed—		
loans in Northwest	42	4
smut-control treatment	11	7
spring loans	25	7
shippers, aid in weevil control	41	8
smut, losses and control	6	14
smuts—		
control by cooperation	10	4
losses in New York	10	15
Grain—Continued.		
sorghum, seed selection in field	5	9
sorghums, adaptability to Texas	16	2
States and varieties	38	3
storage, portable granaries, description, construction	1	15
thrashing methods and cost	27	10
treatment for smut control	10	14
warehouse rules, hearings	46	8
Grains—		
commercial stocks, reports	1	9
high bushel weights, 1918	24	12
kafir, production increase	1	10
production increase in Canada, 1918 over 1917	25	7
Granaries—		
"knockdown," plans, Markets Bureau	1	15
portable, for storage of grain	1	15
wheat, description, etc	40	1
Granary—		
farm, Department plans	16	3
portable, home-building	9	3
Grand Canyon, establishment and development of tourist's village	26	18
Grape—		
growers, aid in farming	32	4
juice, muscadine, making	39	11
vines, pruning	31	13
Grapefruit, improvement methods for California	17	12
Grapes—		
curculio and root-borer, control	38	14
currant, production outlook	32	4
loading cars, care, and methods	9	13
market in New Zealand	14	11
muscadine, value for fruit paste	39	11
protection from insects	26	19
Grass—		
Bermuda—		
description, and eradication	16	1
for farm-gully prevention	31	3
value compared with trouble	16	1
carpet—		
grazing value in South	41	7
lawn value and propagation	41	7
Napier, growing and adaptation	46	15-16
Rhodes—		
description, value and hay yield	48	5
value in South	48	5
seed, investigation	25	1
Grasses—		
bent, identification and use	2	4
Rhodes and Napier, soils adaptable	29	1
Grasshopper—		
control	45	10
control by fall plowing	52	4
Grasshoppers—		
catcher for, description and use	47	4
control—		
in wheat	50	16
methods	47 51	4 5-6
necessity	52	7
work in Utah	31	12
decrease, Iowa	45	16
destruction in North Dakota	26	22
GRAVES, COL. HENRY S., Forestry Chief—		
address at Lumber Congress	39	1-2
statement on forests	42	16
statement on woodlands	39	15-16
GRAY, DR. L. C.—		
appointment, land economist	45	1
head of land economics	46	1
Grazing—		
aid in pasture improvement	32	3
excessive, injury to soil	10	9
forage crops, value for lambs and sheep	41	2
National Forests, increase	5	11
permits, National Forests, order by Secretary	20	2
pig	47	3
winter and early spring	10	5
Great Plains, drought-resistant plants, adaptability	26	18
Green plant bugs, control	9	5
Greenhouse, fumigation for gall fly	49	4
Greensand, potash source	14	1
GRIMES, A. M., death notice	14	3
Grit, necessity for hen digestion	50	4
Grouse, ruffed, protection	16	7
Guernseys, purebred, purchase by Wisconsin farmers	45	5
Gum—		
adhesive, manufacture from corncobs	13	3
black, creosoting, results	52	9
HECKNEY, J. M., letter on cattle tuberculosis	50	3
Hahto beans, new introduction	37	15
Hams, curing methods, and brine formula	20	8
Harness, repair tools, note	42	14
HARRELL, DAVID, appointment as livestock commissioner, sketch	42	8
Harrowing, May, for grass and weed control	40	4
HARTLEY, H. L., letter on cattle tuberculosis	50	3
Harvest—		
corn, use of husking machine, labor saving	6	9
crews, Twilight, work in Kansas	9	16
labor supply, aid of business men	1	12
peanuts, directions	6	12
potatoes and apples	10	5
rice, suggestions	5	5
seed corn	3	1
Harvester, platform, utility and value as labor saver	5	8
Harvesters—		
potatoes, labor from towns	4	5
sugar-beet, value in labor saving	42	4-5
Harvesting—		
grain sorghums	1	15
oats, in South, directions	44	7
potatoes	47	3
tall fescue	44	4
Hats, making at home to save cost	44	9
Hauling—		
comparison of truck with wagon	13	1
motor and wagon, cost per ton	13	1
Hawaii, food production	22	9
Hay—		
alfalfa, injury by weevils, control methods	26	17
car lots, community buying	28	10
crops, estimate, 1918	14	8
per cent of clover and timothy	30	13
selling, cooperative	47	12
shortage investigations	9	12

Subject.	No.	Page.
Hay—Continued.		
stackers, making and use	44	4
summer, forage-crop use	40	4–5
swing-around stacker, advantages	36	10
wholesale buying	31	11
Health—		
children, guarding by farm bureau, example	25	8
club organization, in Iowa	44	9
relation to milk supply, remarks	3	6
Heat—		
bottle, description and use	25	10
cause of hogs' death	48	7
wood and coal value, comparison of	10	10
Heating, control of bean weevil	4	7
Heifer calves, raising, recommendation for	3	8
HEISE, EDWIN, champion beet grower, 1918	50	6
Hemp, Chington, yield	33	14
Hemp-fiber, production and distribution	24	2
Henequen, production promotion	35	13
Hens—		
breed selection	35	16
care, feed, and feeding	15	2
culling—		
in Missouri	34	7
methods and value	9	8
remarks	9	12
egg production, annual	48	2
egg-producing period	15	2
feeding with dry mash	48	8
fences and yards, description	9	8
housing plans and houses	17	8
inferior, elimination	10	13
laying—		
characteristics	12	4
records	46	16
need of dust or ash box	40	14
nests, building	46	11
profit-producing period	40	3
requirements for layers	36	4
Rhode Island Red, profits from pair	39	11
selection, qualities influencing	28	4–5
unproductive, elimination	14	12
White Wyandotte, profits in 5 years	39	11
young, laying of	51	8
Herds—		
accredited, advantages	52	13
cattle, accredited, list demands	45	9
dairy, accredited lists	7	6
Heroism, French widow and American farm wife, comparison	15	3
Hessian fly, invasion feared for 1919, injuries and control	36	16
Hides—		
care in skinning animals and curing skins	5	7
prices, Chicago and New York	49	5
stocks—		
and trade reports	38	2
increase	46	8
December 31, 1918	34	3
March 31, 1919, with comparisons	41	12
on hand December 31, 1918	35	11
on hand January 31, 1919	36	2
Highway Commission, Federal, Secretary's opinion of	43	1, 13–14
Highways Council—		
approval of road building projects	12	2
United States bridge building, control	10	2
United States, organization, etc., 1918	20	4
Highways—		
States, army road equipment	47	1–2
United Stated Council, control of construction	6	2
Hives—		
bee—		
profits and honey increase	2	3
relation to profits	2	3
packing to protect bees	10	7
HOBSON, ASHER, appointment as Assistant Chief, Farm Management	36	10
Hog—		
cholera—		
control work, 1918	22	8
control work, pork increase	34	13
losses lessening, letter of Secretary Houston	24	15
lower death rate	33	14
spread—		
and quarantine	9	9
prevention by vaccination	9	14
treatment	9	9
See Cholera, hog.		
conference at Beltsville, Md	48	6
crate, construction	52	6
feed, study of use of garbage	3	7
houses, movable, use and value	17	6
lice—		
control	47	3
control methods	26	7
pasture, drainage requirements, etc.	40	3
production—		
conference	48	6
United States leading country	52	1, 10
wallows for porkers	50	14
Hogging down, corn and other crops	8	2
Hogs—		
auction sales, California	47	13
breeders' conference	6	9
disease remedies, seizure	28	3
feeder—		
buying in South	45	15
raising in South Dakota	50	2
feeding—		
and marketing in Florida	45	10
home-grown feeds	47	12
on corn	37	4
use in hog feeding	8	4
feeds with protein, suggestions	2	1
forage crops	8	2
handling in summer risks	49	3
housing, value of	17	3
importation from Canada, regulations	34	11
improved breeds, value	51	8
inspection methods and regulations	32	9
Iowa farm, Jan. 1, 1919	48	2
killing, methods and treatment	11	4
management	10	13
marketing—		
by motor trucks	1 36	6 15
early, in Florida	45	10
increase, 1917-1918	40	3
packers' agreement	14	6
number, estimates	6	5
Hogs—Continued.		
numbers in leading States	47	16
pasturage on irrigated crops	39	3–4
pasturing on soy beans	14	13
pedigreed-scrub, caution	50	16
price—		
increase, 1915–1917	33	7
increase by community shipping	41	10
stabilizing	14	6
production—		
increase, comparison with increase in population	50	1, 5
increase in Florida	31	11
purebred, in North Dakota	37	6
raising—		
helpful practices	52	10
in corn belt	48	8
in South, increase	14	11
in Texas, profits	30	12
receipts, August, 1917, 1918	9	9
self-feeder fattening, advantages	42	14
selling, cooperative	34	13
shipping—		
cooperative	27	18
cooperative in Iowa	50	5
crates	50	16
deaths from heat	48	7
show, Department representation	2	6
sick, advice against shipping	9	14
stock—		
number estimate, Sept. 1, 1918	13	4
number, Sept. 1, 1918	14	4
sunstroke, prevention	50	14
transportation in summer	49	3
tubercular—		
killing indemnity	11	1
per cent in United States	11	1
use and value of iceless coolers	48	6
vaccination	32	9
importance	9	14
water and shade	49	4
world numbers, United States percentage	52	1
HOLCOMB, GOV., citation on farm bureaus	45	14
Home—		
accounts, value to housewives	50	6
canning—		
demonstrations in France	44	3
record year, preparation for	6	1
supplies, cooperative buying	52	11
work for girls, plans by agents	24	5
Home demonstration—		
aid to brides	33	8
work—		
cooperation	25	8
improvement	33	4
North and West, statement of Florence E. Ward	24	4
remarks	44	9
teaching foreign women	36	13
Homes—		
demonstration agents, work	39	10–11
farm, free Department plans, and description	42	10–11, 12, 13
improvement by demonstration work	25	8
savings, comforts, and economy	41	1–2
Honey—		
club, production in Kansas	34	9
comb, care of	52	8

Subject.	No.	Page.
Honey—Continued.		
increase of stock	2	3
plants	1	14
production—		
amount and value	1	14
as sugar substitute	30	10
increase	10	16
	14	9
use of good bee houses	5	3
prospect for year	46	13
States producing, list	1	15
Hops—		
crop forecast for 1918	1	10
production decrease, 1916–1918	23	2
Horse—		
beans, soil requirements, value, etc	9	15
breeding, aid from Mrs. Wadsworth	33	11
influenza—		
character and control	14	1
summary of outbreaks	14	1
Horses—		
army, purchase abroad	30	3
breed improvement, importance	16	6
breeding work of Department, army remounts	1	6
Canadian, prices and ages	40	3
cavalry, scarcity in United States	16	2
draft, price increase	33	6
feed, rations, etc	39	7
help in rising after a fall	22	14
increase, 1915–1919, by war demands	32	13
labor savers in beet growing	42	4–5
losses in German war	32	7
marketing	27	7
nose guards	50	16
number in war service	30	2
shipped overseas for war	30	9
price changes since 1910	14	8
protection from flies	43	5
quality improvement	13	6
sales by War Department, places and dates	24	14
treatment for influenza	14	2
War Department, Nov. 2, 1918	27	18
winter care	19	3
work, hardy stock securing	46	13
Horticultural club, Takoma Park, D. C., scope and members	41	16
Hospital, canning food for winter	37	7
Hot water, use on grain seed for loose smut	5	8, 9
Hotel keepers, aid in food conservation by home-demonstration agents	1	7
Household—		
accounting, method	1	11
accounts, keeping by Oregon club women	15	7
Houses—		
bunk, for farm workers	38	4, 5, 6
farm-tenant, plans, etc	26	12, 14, 15
poultry, building	47	2
Housing—		
live stock, importance	14	11
need and value for fattening hogs	17	3
HOUSTON, D. F., Secretary—		
decision in plant-quarantine	39	2–3
denial, cotton price-fixing	9	10
discussion of agricultural education	4	2
rural life	42	2
letter on Agriculture extension funds	35	9
HOUSTON, D. F., Secretary—Contd.		
letter on sheep-killing dogs	29	1
letter on women's work in war	3	2
letter to Mr. Brand	47	8
Liberty loan work	9	1
message on wheat crop	2	8
opinion on highway commission	43	1, 13–14
planting memorial tree for soldier dead	35	2
remarks on Arbor Day	35	1
reply to greeting from Macon Academy, France	6	9
statement, credit unions	36	6
of Agricultural forces, and organization	15	1
on Bolshevism	42	3
road work, 1919	36	1
telegram on balanced farming	30	5
visit to drought regions	9	1
wheat price guarantee, letter to Representative Lever	23	1, 3
See also Agriculture, Secretary.		
HOOVER, HERBERT, letter to Gov. Stuart	10	3
HUNT, DR. THOMAS P., opinion of boys' clubs	30	7
Hunters—		
game-law requirements	9	3
work on forest ranges	12	5
Hunting—		
bag limits under migratory bird treaty act	4	8
Sunday, prohibition in various States	18	19
waterfowl, open season, various States	4	8
Hurricane service, extension by Weather Bureau	44	14–15
Husking corn, delay injurious	14	11
Hyacinths, growing indoors	14	4
Hydrocyanic-acid gas, control of rice moth	52	4
Ice—		
care against contamination	18	4
conservation in dairies	45	2–3
cream, requirements	38	3, 7
cutting methods and tools	13	5
economic importance	20	6
harvesting time on ponds	24	9
houses, description and readiness	9	10
packing, need in rabbit shipping, for spoilage prevention	21	16
reduction of food waste	30	11
storage—		
necessity and methods	22	14
time	29	10
Idaho—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
blackleg, control work	29	15
dairies, improvement	45	14
ground-squirrel destruction	28	5–6
lamb sales	29	14
wool pooling	45	12
Illinois—		
bird laws under treaty act	4	8
cattle—		
tuberculosis control	47	2
tuberculous, shipments	52	4
farm labor, needs and supply	3	6
Illinois—Continued.		
food products, canning and drying increase	30	10
grain, infected, regulations	51	4
pig profits	37	7
poultry club work	37	7
wheat diseases, studies	43	6
Immigrants, foreign, nonagricultural	47	8
Implements—		
farm demonstration	46	13
use, instruction in schools	52	5
Indemnity, condemned animals	45	9
Index, News Letter, volume 5	30	2
India, wheat area, decrease	45	8
Indian Bureau, thrift work	44	11
Indiana—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
buying feeder hogs in South	45	15
club boys' calf, gain	34	10
community seed-corn testing	34	6
corn—		
contests	45	11
disease, studies	11	8
demonstration work, studies	50	9
farm—		
help, keeping methods	22	4
implements, demonstration	46	13
grain infection regulations	51	4
Morgan County, rat control	12	6
Indianapolis, schools, milk for children	47	16
Influenza, equine, character and control	14	1, 2
Inoculation, artificial, of soil	11	4
Insect pests, control—		
by parasite	52	5
work	30	15
	31	2
Insecticides—		
law violations and prosecutions, 1918	20	4
use—		
against cucumber beetle	41	13
methods, studies and demonstrations	22	4
Insects—		
control in cotton packing waste	9	7
corn, seed protection	1	3
cranberry, control by flooding	9	4
crop-damaging, control methods	16	8
fruit, control	26	11
house pests, control experiments	17	5
injurious to crops, control study	13	6
obstacle to poultry	43	2
trap-crop, control	17	16
Inspection—		
corn, provisions of grain standards act	1	9
cottonseed meal	7	2
meat, scope and volume, 1918	19	7
nursery stock	37	9
Inspectors, food—		
examination of condensed milk factories	5	15
warning on olive oil	12	2
Insurance companies, mutual, number and insurance carried	48	2
Interior Department, thrift work	44	11
Inyo National Forest, area elimination	41	9
Iowa—		
agricultural advisers for draft boards	10	12
appreciation of circulating library	39	11

Subject.	No.	Page.
Iowa—Continued.		
barberry eradication	29	14–15
bird laws under treaty act	4	8
boys' clubs, exhibits of baby beeves, prizes, and prices	15	7
breeders, associations, and work	41	11
cooperative hog shipping	50	5
corn club, rivalry	40	9
corn crop, advantage of seed, work of agents	6	5
county organization, growth	45	10
farm bureaus	11	7
food saving records	6	8, 9
garden clubs, membership increase, 1919	48	8
health clubs, organization	44	9
leading State for hogs	47	16
live-stock value, comparison	33	10
pork-curing demonstration	52	15
purebred calf club, sales and prices	31	15
seed corn, testing and saving	29	7
wheat-production increase	12	6
wool conservation, work	12	7
Irrigation—		
aid to farmers	27	8
farmers, foundation stock purchase	43	16
farms, labor need	47	15
Montana, need to fight drought	7	6
opportunities and land acreage	38	3
strawberry, needs in West	41	12
use of clay tile	22	9
water, saving	31	2
Iron, need in farming	5	12
Japan, beans, new	37	15
Japanese beetle, eradication methods	21	15
Jointworm, wheat—		
injuries, habits, and control	17	6
injury and control	21 38	5 16
Kafir—		
grains, production, increase	1	10
seed testing, and planting time	35	4
sowing time	40	5
Kansas—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
Defense Council, praise for farm bureaus and agents	9	9
egg grading and losses, 1916–1918	37	10
egg improvement, work	49	3
food conservation, work	46	13
girls' offer of services on tractors	5	3
honey production by club	34	9
mother-daughter club	31	14
potatoes, with blackleg injury	52	15–16
Pure-seed-growers' Association	39	6–7
wheat crop, labor committees	9	16
wheat harvest, work of volunteers	8	8
Kentucky—		
bird laws under treaty act	4	8
farm labor, supply	5	5
sheep raising	37	14
KIERMAN, DR. J. A., statement on cattle tuberculosis	34	5
KIRK, MARGARET, canning work	43	15
Kitchen—		
liberty, turning into cannery	7	6
training, for war workers	4	4
Kitchens—		
community, work in various States	6	2
farm, improvement	12	2
wall painting	43	5
KNAPP, BRADFORD—		
crop diversification, address on	34	
statement as Chief	27	
Labels—		
food and drugs, law requirements	40	10–11
package foods	12	2
Labor—		
agricultural, draft laws	7	5
cane and rice harvests, supply by towns	6	10
conferences in various States	5	12
constraints to employment	2	7
Department, thrift work	44	11
farm—		
aid of town people	4	4
condition improvement, various sections	41	14
discussion at Chicago, July, 1918	2	2
draft advisers, by States	13	8
for potato harvest	3	6
need and wages paid	39	13
probable lack in 1919	26	11
remarks	26	15
shortage in South, and sources of supply	5	5
skilled, deferred draft	7	1
study	46	10
supply by Service League	2	6
supply from conscientious objectors in cantonments	6	13
supply in Illinois	3	6
use of city men	2	6
See also Farm labor.		
harvest—		
Kansas, 1918	9	16
use of city workers	1	11
need on irrigated farms	47	15
potato, harvesting, aid of town people	4	5
requirements for road building, 1919	25	3
saving in sugar-beet growing	42	4–5
supply—		
by farm bureaus	8	7
for harvest work, help of business men	1	12
wages, comparison with farm prices	38	5–6
Laboratory, forest products, war work	47	5–6
Laborers, farm, patriotic work	10	1
Ladybird, destruction of fluted scale	24	14
Lambs—		
cooperative sales	29	14
feeding—		
and care	49	4
on forage crops	41	2
soy beans, gains	14	15
orphan, saving in Utah	50	6
per cent of flock	52	16
preparation for market	35	6
production in Idaho, 1919	37	14
salvaging by club members	40	9
saving on sheep ranges	28	4–5
Laminated construction, progress	47	5
Land—		
clearing—		
directions	6	13
instance	39	10
Land—Continued.		
conference, members, etc	43	1–2
economics, studies	45	1, 7
Government-owned, area, farm development, etc	38	3
idle, food-producing capacity	32	8
irrigated sections, area	38	3
utilization studies	43	1–2
vacant, proportion tillable in United States	20	5
Lands—		
aspen, reproduction, with cattle grazing	28	9
Canada, attraction to U. S. farmers	45	1
cut-over, use for pasture	52	15
idle, settlement activities, Secretary's report	20	1
National Forests	51	3
swamp—		
acreage in United States	41	6
drainage, need for organization	41	6–7
wet, productiveness, etc	23	6
yellow-pine, adaptability for pasturage	26	11
LANTZ, DAVID, E., death notice, and sketch	14	7
Lard—		
fraud, prosecution	43	8
stock increase	9	16
stock increase, January 1, 1918, to January 1, 1919	33	10
Larkspur, control on ranges	5	15
Lath, decrease of 1917 cut	37	4
Lawn, turf disease, symptoms	47	16
Lawns—		
injury by earthworms and grubs	45	15
treatment for injurious insects	45	15
Laws, game, under United States-Canadian treaty	4	1
Leaf spot, cherry, control	52	11
Leaf spots, description and cause	50	13
Leather supply, increase campaign	1	6
Leaves, value for animal bedding	17	13
Legislation—		
for agricultural education	4	2
meat industry, need	49	5
Legumes—		
injuries from weevils, and control measures	18	5
need on upland farms, Gulf States	10	7
Letters, cattle owners, on tuberculin test	49	2, 8
Lettuce, growing in California	42	16
Liberty—		
bonds, warning against swindlers	35	8
Farmers, organization, La Porte, Ind	1	6
loan, remarks	9	1
Library, circulating, appreciation in Iowa	39	11
Lice—		
body—		
study and experimental work	7	4
study by entomologists	7	6
chicken, control by dipping	50	16
hog—		
control methods	26 47	7 3
remarks	48	6–7
pig, control	44	7

Subject.	No.	Page.
Lice—Continued.		
poultry—		
control work	15	5
	35	5
preventives	40	11
Licenses, stockyard, requirement	1	1
Licensee, stockyard—		
definition	1	1
requirements and regulations	1	1
License, stockyard, requirement	4	3
Lightning rods, value in fire prevention	40	15
Lightships, storm warnings	8	8
Lilies, Easter, importation and value	34	11
LILLY, BENJ. V., lion hunter	45	4–5
Lily—		
bulbs, home grown, comparison	34	11
Chroserma muscaetoxicum sp., poisonous to cattle and sheep, control	16	3
Lime—		
air-slacked, use in control of bean weevil	4	7
arsenate, use and value as substitute for Paris green	21	7
benefit to wheat	6	10
early ordering	33	13
manufacturers, preference in fuel supply	4	6
preferred list by War Priority Board	4	6
purchase, limit removal	18	19
spreader, community ownership	45	12
spreading, wind shield, home-made	6	11
use in disposal of dead animals	6	3
use in preserving eggs	2	4
use, increase in Ohio	29	2
Limestone—		
community supply	30	4
grinder, club ownership, cost, etc	34	6
grinding for fertilizer, outfit	34	6
Lime-sulphur solution, cherry spraying	52	11
Lime-water, use in preserving eggs	46	9
Linden tree, honey source	1	14
Lint, lengths of cotton, crops 1916-1917	12	5
Lion hunter, B. V. Lilly, career	45	4–5
Lions, mountain, hunting on forest ranges	12	5
Live stock—		
breeders and importers	33	3
breeders, Minnesota, cooperative work	6	9
breeds, standardizing	46	13
buying, licensing packers	9	10
Canadian, price increase, 1914-1918	40	2
Chicago, extra report	1	7
classes, percentages found on farms	6	5
Commissioner, duties in South America	42	8
cooperative selling in Tennessee	39	6
decline on farms	10	15
	12	2
disease as factor in production	3	4
diseased, warning to buyers	40	3
diseases—		
control methods	18	21
prevention and precautions	40	3
estimates, improvement	52	1–2
European demand	28	10
farm, study for soldiers	46	9
farm value in Canada, 1918	38	2
feeding—		
rations and standards	48	8
soy beans	14	8
stinginess	47	16
foot-and-mouth disease	27	24
Live stock—Continued.		
foreign competition with United States	29	1–2
housing, importance	14	11
importance in south	46	3
improvement	27	7, 9
	29	1–2
improvement in South	45	13
increase—		
in Canada, 1914-1918, note	25	6
in stockyard business	32	10
industry—		
in Florida	11	8
interstate traffic, feeding	42	14
progress in South	19	4
judging contests in Pennsylvania	33	16
market news, extension of service	19	10
market stabilization	40	13–14
markets report, commendation by farmers	18	23
on farms, 1918-1919	33	12
pasturing on cut-over lands	52	15
percentages, reports from farms	14	8
Porto Rico, number and kind	33	8
price increase, comparison with crops	38	16
production—		
aid of county agents	22	15
and kinds	21	2
for war food	42	9
forecast for 1919	26	1
increase	39	16
increase, breeders' pledge	6	8
1918, value and distribution	23	4
protection—		
against poison sprays	44	2
by killing predatory animals	15	6
in forest ranges	12	5
purebred—		
purchasing by farm bureaus	45	3
reports, plans	47	14
quality—		
importance	48	8
improvement in California, exhibits, etc	15	8
receipts—		
at 40 markets, December, 1918	25	3
at markets, November, 1918, with comparisons	22	15
in August, 1917, 1918	9	9
in July, 1918	3	2
regulations at stockyards	1	1
sale aids by County agents	29	14
sales, cooperation in Wisconsin	31	15
scrub—		
elimination	29	2
replacement by better	46	13
situation—		
in foreign countries	52	3
in Scotland	14	8
source of farm income	48	8
tuberculosis, State aid in control	33	14
value—		
changes, 1913-1919	34	8
in Iowa, with comparisons	33	10
LIVINGSTON, GEORGE, work in Markets Bureau	47	8
Loading, potatoes	47	3
Loam, adaptability for soy beans	17	11
Loans—		
cattle, plans of War Finance Corporation	5	2
Loans—Continued.		
farm. *See* Farm loans.		
farmers, War Finance Corporation, advancement	1	14
grain—		
aid to farmers	14	12
drought areas	12	3
to farmers in drouth-stricken areas	1	1
	5	4
Locust trees, protection from borers	43	4
Locusts—		
seventeen-year—		
chicken feed, danger	46	14
description, history, and injuries	32	5
emergencies, 1919	44	8
fruit-tree protection by sacking	36	13
infestation, 1919	27	16
visitations	37	3
See also Cicadas.		
Log heaps, utilization for fire wood	40	7
Logan blackberry, description, uses, and value	20	4
Loganberry, juice value as drink	45	5
Long Island, bird laws under treaty act	4	8
"Long Trail," farm-bureau drama	45	11
Louisiana—		
agricultural advisers for draft boards	10	12
agricultural college farmers' week	41	10
bird laws under treaty act	4	8
buying and selling agencies	29	6
canning club work, 1918	37	6
cattle—		
improvement by tick control	41	11
improvement work	39	7
tick eradication	5	10
cooperative buying, saving	43	9
cotton club work	34	10
diversified farming, results	45	13
farm labor supply	5	5
fruit-tree treatment	43	9
hog shipping corporation	41	10
mosquito extermination	50	15
poultry clubs, increase	47	11
rice growing, use of tractors	43	9
road building	49	6
safe farming, development	47	13
seed corn, growing by club boys	43	12
sugar crop estimate from averages	14	8
swamp land reclamation	6	14
terracing, etc., by county agent	29	7
tractors, increase and farming value	50	9
velvet beans, growing	29	15
"Love apples," early name for tomatoes	36	9
LOWE, REUBEN, poultry keeping	48	7–8
Lumber—		
decrease of 1917 cut, cause	37	4
industry, address of Col. Graves	39	1–2
production—		
1917, 1918	36	9
decrease	46	4
Lunch, school, object lesson, value	46	8
Lunches—		
school, need for improvement	40	16
workmen's value of milk	49	7
Macaroni standards	52	15
MACDONALD, THOMAS H., appointment	36	1
Machine, boll weevil, poisoning, description cost	51	7

Subject.	No.	Page.
Machinery—		
agricultural, college instructions	52	5
American, needs for in Algeria	24	8
farm—		
maintenance importance	44	5
overhauling in winter	17	15
protection in winter	10	5
wool—		
idle, Apr. 1, 1919	41	8
per cent idle, Mar. 1, 1919	37	4
Mahogany, classification	11	7
Mahonia, quarentine for stem-rust control	40	8
Maine—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
farm organizations and savings	31	12
pork production increase	14	13
Mallard ducks, superiority for farms, studies	24	14
Mangers, standard, for dairies	27	11
Manure—		
purity retention, stock yard methods	50	15
saving, importance, and method	9 10	15 5
spreader, saving of time and waste	6	12
Manure, stable, value for wheat fertilizer	6	2
use, methods in Pennsylvania	13	3
use on wheat to increase yield	5	16
Manuring, green, use and value	9	13
Maple sugar, production in Vermont	32	2
Maps, base, cooperation in making	22	7, 10
Market—		
city, scope and value	29	14
curb, organization by women at Miami, Fla	4	4
exchanges, Rhode Island, scope and profits	29	15
houses, and canning club booths	41	15
inspection of food products	30	14
news, usefulness, value and extension of service	19	10
reports, publication in Italian	38	12
Washington, D. C., news service	2	7
Marketing—		
baskets, from farm to city	16	6
direct to consumers, limitations	32	10
eggs, hints	16	3
emergency Government work	26	7
flowers and vegetables, for wounded soldiers	13	7
hogs—		
in Florida	45	10
use of motor trucks	1	6
home products, work of women's club	7	6
meat, study	47	15
need of standard containers	43	3
sweet potatoes, aid of field agents	36	13
Markets—		
Bureau—		
administration of stockyard regulations	1	1
chief's resignation	47	8
development of motor routes	8	2
repayments to woolgrowers	22	8
retail meat selling, studies	36	13
work on cotton grades and markets	12	8
community, waste prevention	9	13
Markets—Continued.		
European, value to American farmers	40	1–2
farm—		
development abroad	21	1
displays, assistance	27	8
foreign, accessibility to farmers	22	7
primary, wheat prices	6	1
report on live stock	18	23
stabilized, reports	40	13–14
Marl—		
discovery in well digging	33	7
use for fertilizer	33	7
Marquis wheat, leading variety	46	13
Maryland—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
boys' clubs, results	45	12
bull associations, profits	39	8
canning club, patriotic work	49	7
forest problems, conference	44	1, 14
motor-truck route	37	12–13
peaches, production and profits, 1918	21	8
pea-root rot	48	6
Mash, value for hen feed	48	8
Massachusetts—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
boys' and girls' clubs, county leaders	19	5
club leaders	34	9
food production by factory worker	13	4
Harvard canning club, record, 1918	46	7
quarantine of corn	11	6
Meadows, pasturing stock	6	10
Meal—		
corn—		
standards, hearings	14	7
stock increase, 1919 over 1918	40	7
stocks, Mar. 1, 1918, 1919	36	7
cottonseed, inspection	7	2
stock reported, 1918	1	9
Meat—		
animals, increase on farms	45	16
cold-storage stocks, Jan. 1, 1919	41	8
conservation need	49	1
exports, increase, 1917–1918	40	3
increase in United States in 1918	40	2–3
inspection, Federal, scope and volume, 1918	19	7
inspectors, selection and usefulness of women	25	10
market—		
cooperative for farmers	6	15
helped by use of light-weight cattle	6	7
marketing, study	47	15
packers—		
licenses, regulations	8	3
live-stock buying, license provisions	9	10
preservation, note	38	14
production—		
increase by boys' and girls' clubs	21	9
increase in South	39	13
products—		
needs of Europe	28	1, 11–16
production and kinds, war record	21	2
Meat—Continued.		
restrictions, release by Food administration	4	3
retail marketing, study by Markets Bureau	36	13
sources and mutton consumption	47	6
supervision of industry	49	1–2, 5
supply by use of shark fish	39	10–11
Meats—		
Army, Navy, etc., selection by Agriculture Department	24	3
cured, production increase, 1918–1919	33	15
Department exhibit, swine show, Sept. 29–Oct. 4, 1919	51	7
imports, 1918	29	1–2
market news, extension of service	19	10
market stabilization	40	13–14
need in France	52	3
Mechanics, study in Mississippi college	52	5
Medicines—		
cattle, administration	45	3
misbranding	42	4
Memorial, war plans for Department	37	3
Merchant marine, aid to farmers	22	7
Meteorological investigations during the war, results	6	3
Mexican border, fumigation houses for disinfection of vehicles	1	7
Mexicans, study of cottage cheese making	3	7
Mice—		
control in granaries	47	14
injuries and poisoning methods	43	2
trapping methods	43	2
Michigan—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
boy and girl members of farm bureaus	50	7
farmers, buying purebred dairy stock	46	3
milk consumption increase	49	6
mother-daughter canning clubs, work	30	10
roadside trees planting	49	7
Midge, clover-flower—		
control for seed production	40	5–6
description and control	43	6–7
Milk—		
analysis for small cities	34	12
bottles, losses to dealers	36	10
care in dairies	45	2
in the home, notes	5	3
city supplies, improvement	17	3
condensed—		
and evaporated, stock reported, 1918	1	9
increased production	6	6
inspection and care	5	15
stocks, Jan. 1, 1918, 1919	28	16
supply, in May, 1919	45	7
consumption increase, Michigan	49	6
contest, October, 1919	50	5
daily waste in homes	43	5
definitions and standards	44	3
delivery, improvement	44	16
denatured, food value for young animals	12	3
establishments, market, saving methods and economic importance	25	13

Subject.	No.	Page.
Milk—Continued.		
explosion, Iowa, investigation	44	8
filters, description and efficiency	32	8
food value—		
and use	10	6
for children	47	15
for children, experiments	31	15
for workers	49	7
note	2	5
handling methods, conference studies	42	15
increase—		
in use, note	3	6
of production, suggestion	3	3
inspection for small cities	33	3
prices in various States	33	13
production—		
farmers' war record	21	2
increase in France	52	3
test	35	11
pure, dairy sanitation	51	8
quart per child, methods	30	11
removal of odors, methods	36	12
skim, utilization	27	10
	49	7
souring at creameries	9	10
stations, benefits in cities	39	10
stocks, Mar. 1, 1918, 1919	36	7
substitute for beer	45	16
supply—		
for Navy, safeguarding	6	8
Naval Academy, safeguarding	4	5
small cities	33	3
to shipbuilders	2	6
utensils, cleaning, importance	31	7
value—		
as poultry feed	48	5
charts, distribution	37	15
for growing children, examples	39	10
of 100 pounds	6	13
weight and fat content	24	8
Milk-bottle losses, reduction methods	36	10
Milks, condensed, etc., stock increase, Apr. 1, 1919	40	7
Millinery, home work	44	9
Mills—		
cane, description and cost	39	5
danger of fires, control	39	13
sugar-beet, building of	2	1
woolen, per cent idle, Jan. 2, 1919	28	16
Milo—		
seed testing, and planting time	35	4
sowing time	40	5
Miners' families, in wheat saving, Minnesota	8	8
Minnesota—		
agricultural advisers, for draft boards	14	3
agricultural war work, organization	10	15
bird laws under treaty act	4	8
butter-fat increase, effect	22	8
child-welfare work, example	24	6
cut-over lands, pasture use	52	15
Federal aid in forest fires	27	5
lead in home-made bread, 1918	31	14
live-stock, breeders' cooperative work	6	9
pig-raiser champion	43	10
training camp for club members	43	10
wheat saving by miners' families	8	8
Misbranding, foods, drugs, and feeds, methods	42	2, 3–4
Mississippi—		
agricultural advisers for draft boards	10	12
agriculture-system change	37	5
bird laws under treaty act	4	8
boll-weevil, control studies	51	4
boys' club war workers, registration day	16	7
cattle-tick eradication	5	10
college, course in mathematics	52	5
cooperation of towns and farms, results	47	13
crop marketing by county agent, example	21	3
cut-over lands, stock raising	32	13
girls' club work	40	9
Negro boys' club work	37	7
Pontotoc County, crop production, 1918	37	5
poultry improvement	35	13
Missouri—		
agricultural advisers for draftboards	14	3
bird laws under treaty act	4	8
culling hens, and profits	34	7
egg laws	47	9
egg-laying contests	40	10
Farm Bureau Association work	12	6
girls' sewing club, prizes	34	10
wool selling, community work	52	12
Mite, cause of cattle scab	29	12
Mites, chicken, control	15	5
MOHLER, DR. JNO. R.—		
address on disease control	32	1, 10
address on sheep	40	11
address on tick eradication	29	3–4
cattle-tick eradication, date	31	15
live-stock improvement	29	1–2
statement on foot-and-mouth disease	12	1
Moisture test, wheat varieties	47	7
Molasses, standard, change proposed	33	9
Moles—		
profit from skins	5	13
trapping and sale of skins	14	9
Money, loan distribution to farmers	3	6
Montana—		
(and Dakotas), bean for	36	14
bird laws under treaty act	4	8
farm-management contest	45	16
grain loans, allotments	12	3
hay, community buying	28	10
live stock, pasturing in Minnesota	52	15
need of irrigation water	7	6
rodent extermination	13	7
sugar-beet growing	27	15
MORGAN, DR. L. E, cattle testing	50	3
Mosquitoes—		
control hints	44	7
extermination in Louisiana	50	15
nature and control	45	2
Moth—		
balls, use in seed corn for control of insects	1	3
borer—		
sugar-cane, injuries, and control	37	11
parasites, collection	6	9
brown-tail, injuries to men	37	9
clothes, control in woolen clothing	14	5
codling—		
apple injury, 1918	35	13
control studies and work, 1918	21	5
laboratory investigation	35	13
Moth—Continued.		
gipsy—		
laboratory inspection, results	7	7
parasite control	52	5
rice, control	52	4
tussock, control	31	14
wax, control	52	8
Mother-daughter—		
canning club, work in Michigan	30	10
club, work and growth	31	14
Moths—		
caution, suggestions	33	5
gipsy and brown-tail, introduction	37	9
grain, control in seed corn	1	3
Motion pictures—		
aid and value in food campaign	21	16
aid in food production	22	10
California fruit production	52	657
society organization, committee membership, etc	18	11
supply by Department	4	4
use in food drive	12	6
Motor—		
routes—		
necessity for both-way loads	34	11
solving of "short haul"	32	11
traffic—		
need of good roads	36	12
relation of weather forecasts	15	7
transportation, rural, factors governing	34	4
truck—		
cooperative use, value	37	12–13
operation restrictions	37	2
owners, cooperative work	8	2
use in demonstration work in Alabama	16	6
trucks—		
advantage over wagon in hauling	13	1
distribution to States, conditions	42	1
use in marketing hogs	1	6
	36	15
Motor-truck routes, development	1	7
Moving picture, California fruit	52	6–7
Mowers, prices paid by farmers, 1914–1918	38	11
Mowing machines—		
overhauling, etc	14	5
repair, note	7	4
Mules—		
for Army, purchase abroad	30	3
losses in German war	32	7
number in war service	30	2, 9
sales by War Department, places and dates	24	14
War Department, November 2, 1918	27	18
work, hardy stock securing	46	13
Muscadine grapes, uses	39	11
Mutton—		
consumption, various countries	47	6
use, comparison—		
with other meats	48	6
pork and beef	40	11
Napier grass, growing and adaptation	46	15–16
Napthalene—		
use in seed corn for insect-control	1	3
value in control of carpet beetles	17	5
Narcissus—		
bulbs, planting time	10	11
growing indoors	14	4

Subject.	No.	Page.
Naval cadets, milk supply, safeguarding	4	5
NEAL, WM., garden work in New Hampshire	50	6
Nebraska—		
barberry eradication, campaign	11	7
canning clubs, prizes	43	16
community playground, establishment, method	30	10
farm bureau members	31	15
garden clubs, products, value, 1918	43	10
Negro farmers, Saturday Service League in Alabama	25	7
Nematode, disease of wheat, study and control	5	1
Nematodes—		
distribution, description, etc	43	12
injuries to Southern strawberries	39	14
injury to canteloupes	48	7
Nests, hen, building	46	11
Neufchâtel cheese, making at home, directions	6	12
Nevada—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
Humboldt Forest, changes in area	49	8
Tahoe Forest, area reduction	52	2
New England—		
sheep raising	44	16
war-food production	42	9
New Hampshire—		
bird laws under treaty act	4	8
farm—		
bureau work	46	13
products, selling by women	36	15
food production increase	5	13
home-garden work of club boy	50	6
New Jersey—		
agricultural advisers for draft board	10	12
bird laws under treaty act	4	8
blueberry-hybridization experiments	25	7
forest problems, conference	44	1, 14
quarantine of sweet corn	11	5
town aid to labor in potato harvesting	4	5
Trenton, city market	29	14
New Mexico—		
bird laws under treaty act	4	8
boys' and girls' clubs, work	34	10
prairie dog killing, benefits	49	7
Roswell, women's rest room	44	9
New York—		
apple crop increase, 1918	1	13
bird laws under treaty act	4	8
Herkimer County—		
farm bureau	50	1
leading farm bureau	31	12
losses by grain smut	10	15
Niagara County, fruit packing	27	1
seed corn sale	11	7
wool growers' cooperative pool	11	8
work and value of poultry-culling club	31	12
New Zealand, market for American grapes	14	11
News Letter, volume 5, index	30	2
Nicotine, sulphate spray for gall fly	49	4
Nitrate—		
diversion from farm use for war uses, statement of War Industries Board chairman	24	7
fertilizing value, cost, etc	39	1
price variations	42	1, 7
sale to farmers by Department	22	1, 3
soda—		
sale to farmers	35	12
supply to farmers, work of War Industries Board	1	8
use in growing corn	30	4
North Carolina—		
agricultural advisers for draft board	14	3
bird laws under treaty act	4	8
Brunswick County, tick quarantine	51	4
calf-club work and profits	40	10
cattle-tick—		
control	48	3, 5
quarantine	52	8
club work of three sisters	43	16
Craven County, tick-quarantine	32	8
farm labor supply	5	5
poultry club member's record	52	14
North Dakota—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
grain loans, allotments	12	3
grasshopper—		
destruction	26	22
injury to wheat	50	16
hogs, purebred	37	6
sheep-industry establishment	29	6–7
Nursery stock, inspection	37	9
Nuts, food value, and use of shells	10	9
Nutshells, use for gas masks	8 10	7 9
Oak leaves, danger to animals	38	11
Oats—		
acreage, increase, suggestion	5	6
feed for hogs	2	2
harvesting in South, directions	44	7
improved strain, development	5	13
planting in fall, notes	5	7
price variation, and causes	36	15
production centers	36	15
seed—		
treatment for increased yield	24	3
treatment for smut control	34	6
sowing—		
on silage, as cover	8	5
varieties, seed bed, etc	31	2, 12
standard grades	34	11
stocks in 1918	10	13
stocks on hand, Mar. 1, 1918, 1919	36	7
stocks on Oct. 1, 1918	14	2
sulphur-bleaching, processes	17	12
sulphur-bleaching, reduction in germinating power	17	12
supply in May, 1919	45	7
uses for food and feed, per cent	36	15
varieties, and yield increase	40	15
yellow, grading rules	42	5
Objectors, conscientious, work on farms at food production	6	13
Odors, removal from milk, methods	36	12
Ohio—		
bird laws under treaty act	4	8
Columbus, dairy exhibits, scope and value	11	8
Ohio—Continued.		
farm help, keeping methods	22	4
lime, increase of use	29	2
thrashing and silo filling	29	6
Oil—		
content, soy beans, effect on quality of feed	6	7
corn, uses, and where made	36	5
cottonseed—		
bleaching	37	11
pressing methods	34	11
production, 1912, 1917	37	4
olive—		
fraud warnings	12 34	2 1
substitutes	37	14
palm, uses	34	10
peanut—		
description and value	38	5
importance increasing	32	14
quality when cold-pressed	37	14
rank in vegetable oils	34	11
refiners' conference and rules	2	7
supply for airplanes assured	5	12
Oils—		
animal, exports, war-time decrease	35	2
conversion into fats	37	13
production increase, methods	32	14
stock increases	9	16
varieties, fraudulent names	34	4
Oklahoma—		
aid in tick control	48	5
bird laws under treaty act	4	8
cattle-tick eradication	5 8	10 6
farm-labor supply	5	5
peach shipping, forecast	52	16
Okra, growing directions	37	3
Oleomargarine, definitions and standards, hearing	16	4
Olive oil—		
fraudulent	12	2
substitutes	37	10
Olives, Mission, characteristics, etc	27	24
OLSON, ALFRED, club champion	43	10–11
Onions, storage, suggestions to growers	20	5
Oranges—		
California, crop estimate, 1918	27	24
improvement by stabilizing varieties	5	15
Satsuma, varieties and production in United States	25	6
Orchard—		
cultivation, importance	44	6
pruning and spraying, demonstration work	16	7
spraying, cheap insurance	27	4
Orchards—		
apple, increased planting, necessity	39	4
home, variety selection, and planting	32	14
notes	35	6
peach, inspection	47	9
planting small trees in apple rows	32	4
sacking, for locust control	36	13
spraying importance	26	15
treatment by county agents	43	9
Oregon—		
bird laws under treaty act	4	8
blackleg, control	29	15
cherry pollenization	29	6

Subject.	No.	Page.
Oregon—Continued.		
cooperative shipping associations	29	15
egg-day observance	46	12
sulphur, cooperative buying	29	15
women, account keeping	15	7
OUSLEY, CLARENCE—		
Acting Secretary, on meat industry	49	1-2, 5
Assistant Secretary—		
address on agricultural finances	31	1, 9
address on agriculture extension work and cooperation	26	3
address on cotton situation, 1919	30	1
citation from letter on farmers' aid to country	4	7
statement on world need for food	15	1
tribute to trees	35	2
Packages, food labels	12	2
Packers—		
committee, personnel	14	7
meat—		
agreement on prices of hogs	14	6
licenses and regulations	8	3
Packing—		
boxes, springs to prevent shrinkage	47	9
houses, fruit	27	1
Paint, use in control of apple borers, formula	26	24
Palms, date, propagation methods	36	11
Panama Canal Zone, insect pests	30	15
Paper, waste products, uses	37	13
Parasite, control of gipsy moth	52	5
Parasites—		
sugar-cane moth borer, collection and study	6	9
use for sugar-cane moth borer control	37	11
Paris green—		
army worm control	44	1-2
use against grasshoppers	45	10
Pasteurization, milk, value	45	3
Pasturage—		
crops for hogs, drainage	40	3
irrigated crops, value for hogs	39	3-4
record prices, 1919	38	13
sheep, use of ditch banks	29	5
utilization along roads and fences	38	11
Pasture—		
fence repair	44	12
resources, knowledge, importance	52	1-2
stock, on meadows	6	10
sweet clover and bluegrass	28	7
Pastures—		
building up, time and treatment	26	18
change for sheep	50	8
improvement in South	31	4
reseeding and improvement, methods	26	18
sod improvement by grazing	32	3
Pasturing, cows, time, cautions, etc	40	4, 12
Peach—		
forecasts, distribution to growers	20	5
inspection of orchards	47	9
shipments, forecast	52	16
Peaches—		
crop condition, Apr. 1, 1918	38	12
production and profits, 1918	21	8
reporters, volunteer, etc	22	14
Peanut—		
butter—		
increased production	6	6
use in soup	10	9
oil—		
cold-pressed, quality	37	14
description and value	38	5
Peanuts—		
acreage, 1917	1	12
growing and profits	40	6
harvesting and stacking	6	12
oil refiners' conference and rules	2	7
protein feed for hogs	2	2
Pear trees—		
planting in fall	14	14
winter pruning	14	10
Pea-root rot. *See* Rot, pea-root.		
PEARSON, DR. R. A., change in official status	9	11
Peas, harvesting and care for weevil control	4	7
Pecan—		
diseases arising from tree wounds	14	15
injury by rosetts, control studies	32	14
trees, pruning and treatment of wounds	14	16
PECK, FRANCIS W.—		
appointment as farm economist	34	16
head of cost-production studies	46	1
PEDWELL, OLIVER, pig-club champion prize pigs	52	16
Pennsylvania—		
agricultural advisers for draft boards	14	3
Allegheny County food drive	12	6
bird laws under treaty act	4	8
Grove City, cooperative dairying	41	3-4
home-garden parade	40	9
judging live stock, club work	33	16
warning against potato wart	13	5
PERSHING, GEN., message to farmers	14	1
Personal-credit unions, aid to farmers	19	8
Pests—		
garden seeds, control	5	14
rabbit, utilization and value	4	5
rodent, control studies	34	7
Petsai, value as lettuce substitute, description, cost	16	4
Philippine Islands, sugar production increase	14	4
Philippines—		
boys' and girls' club members	34	11
boys' and girls' club prosperity	43	16
Phosphate—		
acid, wholesale and retail prices	42	7
raw rock, value	30	4
rock, fertilizer use	2	5
Phosphoric acid, fertilizer, prices	46	11
Pig clubs—		
boys, work with Duroc	50	6
experience for members	40	10
Florida, cooperative shipments	43	11
improvement in hogs	32	12
influence on Florida hog raising	40	9-10
Mississippi, success	8	7
organization and work	34	10
results, Maryland	45	12
work, and profits	22	6
work in Florida	46	10
work in South, records	46	6-7
Pig raiser, Minnesota champion, methods	43	10
Pig raising, cost and profit	27	18
Pigeons, spread of hog cholera	52	13
Pigs—		
club champion, United States	22	6
club contests in Louisiana	52	14
club work in Illinois	37	7
distribution by automobile	30	15
feeding methods	50	8
forcing, injurious	47	3
growing feed by club members, Florida	43	10
guinea, inbreeding experiments	24	12
hairless, study	52	13
healthy, from tuberculous sows	52	13
prize takers, Colorado	52	16
production increase, advice of California county agent	15	8
profits of Tennessee boy	31	14
purebred—		
club work	44	11
for Florida clubs	46	6
raising by Florida club boys	50	6-7
salvaging by club members	40	9
share of feed to each	43	3
value increase by blood improvement, West Virginia	31	11
weaning—		
directions	44	7
early	40	6
time	51	7-8
Pine—		
southern, protection need	33	15
western yellow, seed gathering	5	13
white, blister rust, control	4	5
Pineapples, acreage increase in Hawaii	22	9
Pits, fruit, use for carbon for gas marks	8 10	7 9
Plant—		
enemies, introduction on ships	30	15
quarantine—		
amendment for flower bulbs	35	2
regulation amendments	34	2
Plant-breeding, grain and farm crops, experiments in Alaska	25	7
Planting, bulbs for indoor growing	14	4
Plants—		
forage range, collection and number	13	6
insect enemies, control	37	9-10
poisonous, identification	33	8
quarantine—		
decision of Secretary Houston	39	2-3
restrictions	29	2-3 11-12
rules and regulations	19	3
Playground, community, establishment in Nebraska, methods	30	10
Plovers, open seasons, various localities	4	8
Plowing—		
early fall	5	7
fall and winter	10	5
for spring wheat, note	6	7
late, for grain bug control	52	11
teaching in agricultural colleges	52	5
tractor—		
field planning	50	1-2
turning problems	50	1-2
use for army worm control	44	1-2, 15
wheat, note	3	4

Subject.	No.	Page.
Plumbing, necessity in homes	42	5
Plywood, use, increase	47	5
Pneumonia, pig, cause	52	13
Poison—		
bait—		
grasshopper, formula	47	4
	45	10
cattle-tick, use of arsenic	48	3
formula for army worms	50	16
use in army-worm control	48	4
use in control of rodents	46	12
Poisoning—		
arsenical, value in corn-borer control	42	7
farm animals, danger from oak leaves	38	11
trees and sprouts	29	9
Pollination, in strawberry growing	40	14
Popillia japonica. *See* Japanese beetle.		
Poplar tree, honey source	1	14
Pork—		
American, foreign demand	52	1
curing—		
demonstration	52	15
methods on farms	20	8
exports for October 1917 and 1918, comparison	14	6
price—		
increase by lice	48	6–7
maintenance	10	3
production—		
increase, 1900–1918	50	1, 5
increase in Maine	14	13
increase, South Carolina	52	12
soft, study	51	7
Posts—		
fence—		
preservation by treatment	29	13
spring cutting	31	3
preservation, tests	52	9
Potash—		
American, conference on	14	1
beds, use and value for fertilizer	33	7
content of blast-furnace by-products	22	14
fertilizer, prices	46	11
sale to farm bureaus	30	14
shipments from France, 1919	28	1
sources—		
development in Great Britain	14	8
in United States	14	1
Potato—		
barrel for, requirements	52	4
blackleg, outbreak in Kansas	52	15–16
growing, farm bureau work, New York	45	15
harvesting, labor from towns	4	5
sprayer, cooperative purchase	47	16
sweet. *See* Sweet potato.		
wart—		
danger	46	3
description, caution to gardeners	13	5
eradication	52	16
infestation and control	31	4
injuries	43	13
introduction and spread	44	8
study	12	6
warning to farmers	42	16
Potatoes—		
consumption, per capita	6	3
	48	5
disinfection and planting directions	35	6
Potatoes—Continued.		
European, danger of potato wart	13	5
farm grown, guarantees	9	12
frosted, utilization in starch making	14	12
grading, advantages	45	8
growing, inspection for seed selection	1	11
handling and loading	47	3
harvest labor, remarks	3	5
harvesting dates, 1918	26	15
lessons for elementary schools	45	4
need, and acreage, 1919	27	20
normal stocks, Jan. 1, 1919	32	4
production, and home needs	13	2
seed—		
selection	51	8
selection for improvement	38	12
selection for next year's potatoes	1	11
sorting before shipping	19	9
spraying exhibits	11	7
storage—		
methods	20	3
requirements	52	7
unmarketable, value	35	2
wart-infested, boiling	43	13
warty, warning against	44	11
waste in dirty cellars	3	3
yield in South Dakota	43	10
yields, increases since 1897	12	8
Poultry—		
back yard, notes	44	3
	46	5, 10
breeds	18	24
buildings, sizes	42	5
canning, methods and profits	24	4
care—		
culling, etc., for April	35	5
in summer	44	12
carloads, shipping from Mississippi	47	13
cleanliness essential	52	4
club—		
girls', profits	47	10
profits	52	14
$1,000, work in Connecticut	32	12
culling—		
demonstrations	29	14
flocks	9	12
time	44	7
diseases—		
control	13	2
description and control	17	2
displays in store windows	37	14
dressed, spoilage in shipment, prevention methods	21	3
droppings, utilization	46	4
earnings per hour	35	11
exhibits from United States in France	52	10
extension work	48	6
feed values, comparisons	3	4
feeding—		
fish heads, value	49	8
systems	50	5
growing, care, etc	40	12
house—		
locating	52	7
ventilation	49	8
houses—		
construction	47	2
description and location	37	13
note	39	7
with single pitch roof	42	5
Poultry—Continued.		
importance of early hatching	35	12
improvement methods in Arkansas	41	8
increase, emergency work	14	12
industry—		
adaptability for blind men	41	15
war-time aims	12	4
keeping—		
advantages	1	10
in Maine	48	7–8
in towns	10	5
man, blind, record	52	8
management in Florida	43	9
North and West, work in March	31	13
outlook for raising	3	7
price range, 1918	33	14
primer, illustrated (F. B. 1040)	45	9
production—		
increases in South	43	2–3
increase, 1918 over 1917	41	14
rules and suggestions	17	9
products, market news service, extension	19	10
profits—		
extension work	39	13
in Arizona	46	13
protection from rats	40	7
purebred, increased value in market	40	14
quality and quantity	35	13
raising—		
by Illinois girl	37	7
costs and profits	52	14
rules for beginners	49	4
results of campaign for increase	3	6
use and value of chilling room	20	7
War Emergency Federation, meeting	1	6
work—		
Mississippi girl	34	9
suggestions for September	5	11
workers' conference, Kansas City, scope	16	6
Poultry-club work, profits of Virginia girl	32	13
Poultry-culling clubs, work in New York	31	12
Power, electric, from small streams	45	6
Prairie dogs—		
extermination	49	7
extermination cost	14	9
poisoning in Colorado, 1918	21	8
Preserving eggs, methods	46	9
President Wilson—		
aid to farmers in drouth-stricken areas	1	1
proclamation—		
on game protection treaty with Canada	4	1
on price of wheat	6	1
on stockyard licenses	8	3
Prices—		
beans, stabilizing	44	15
beef, in various cities	49	5
farm—		
and retail, effect of food-products distribution	15	4
trend by months	16	8
farmers, 1914–1918	38	11
fertilizer—		
schedule	46	11
stabilizing in Ohio	45	16
fixing, H. C. Stuart	2	6

Subject.	No.	Page.
Prices—Continued.		
good, for farmers	5	16
hides, Chicago and New York	49	5
hog, stabilizing	14	6
pork, maintenance	10	3
steers	49	2
store, to farmers' wives, 1914, 1918	38	8
wheat, at primary markets	6	1
wool, Government report	45	8
Proclamation, President, on regulations for stockyards	1	1
Produce, marketing, organization, in Delaware	47	12
Profiteering, farm, discussion	3	3
Protein, supply in hog feeds	2	1
Pruning—		
berry bushes	14	14
orchard, in Tennessee	29	7
winter, apple and pear trees	14	10
Publication, stockyard regulations, work of Markets Bureau	1	3
Publications—		
Agriculture Department—		
canning, reprints, translation, etc	6	1
list	29	9
	1	14
	2	7
	3	15
	5	16
	6	10
	7	4
	9	15
new	10	6
	12	8
	13	2
	15	8
	16	5
	34	4
	35	7
	37	5
Pulp wood—		
consumption, decrease	44	11
new uses, result of war work	47	6
use in explosives	38	7
Pyrethrum—		
sealing for strength retention	36	5
use in insect powder	36	5
Quarantine—		
barberry	28	7
cattle tick—		
in Georgia	51	4
North Carolina	52	8
replacement	32	8
corn borer, postponement	33	13
corn, in Massachusetts	11	6
foreign cereals	32	1
hog cholera, order modification	9	9
live stock	34	13
plant, amendment for flower bulbs	35	2
plant insects and diseases, regulations	19	3
plant, regulation amendments	34	2
plants, regulations, summary	29	2–3
San Clements Island, Calif., for scab control	36	12
seed wheat, for disease control	43	6
smut on bamboo	4	6
stem rust	40	8
sweet corn, in New Jersey	11	5
Rabbits—		
control and utilization as food	14	9
ice in shipment for spoilage prevention	21	16
utilization and value	4	5
Rainfall, cause, discussion	6	3
Rains, cold, injurious to milk cows	5	11
Rams, community use, advantages	39	9
RAMSAY, Dr. R. A.—		
cattle-tick control	31	16
statement on tick eradication	34	1
Ranges—		
forest, wild animals, control	12	5
predatory animals, extermination	7	6
protection from wild animals	45	4–5
Rape, feed for hogs	2	2
Rations—		
beef calves	44	6, 7
cattle-fattening experiments	6	6
Rats—		
cause of losses to poultry raisers	40	7
control—		
in granaries	47	14
in trenches	8	5
methods successful in Scotland	5	5
damages in warehouses	8	6
destruction in Army warehouses	28	10
destructiveness	44	2
extermination in Indiana, Morgan County	12	6
RAWL, B. H., appointment in Animal Industry Bureau	10	8
Reclamation—		
projects, cooperative wool selling	49	7
swamp lands, progress	6	14
Recreation, forests use	44	13
Red Cross, Pig Club, Carroll County, Miss	8	7
Red spider, cause of cotton rust, control	6	4
Refiners, oil, conference and rules	2	7
Refrigerator, iceless, value in home	44	7
Refuse, disposal	46	13
Regulations, stockyard, text	1	1
Rendering, carcasses to prevent waste, precautions	6	3
Rhode Island—		
agricultural advisers for draft boards	14	4
bird laws under treaty act	4	8
farm bureaus, membership gain	43	9
market exchanges, scope and profits	29	15
Rhodes grass, introduction in South	48	5
Rice—		
brewers', demand decrease	30	14
consumption, per capita	48	5
diseases, studies and control work	1	7
grades, establishment	10	15
growing, use of farm tractors	43	9
harvest, labor shortage, supply from towns	6	10
harvest suggestions	5	5
moth, control	52	4
stock reported, 1918	1	9
stocks—		
1918	10	13
on Oct. 1, 1918	14	3
straight head, study and control	1	8
varieties, gains and losses in importance	14	8
Rice—Continued.		
varieties, popularity	14	5
water supplying by county agent	15	7
Rings, thrashing, benefit to farmers	14	5
Roaches, habits and control	17	9
Road—		
bonds, issues, 1918	20	4
building—		
appropriations	33	1
control—		
by government	12	2
by United States Highways Council	6	2
in South	49	6
mileage-appropriation increase	32	1
program for 1919	6	2
construction, State supervision	36	12
equipment, Army, award to States	47	1–2
military, Alexandria to Camp Humphrey, Va., construction	15	8
work—		
cooperation of Roads Office	36	1, 11
employment, Secretary's statement	20	1
Federal-aid State advice	43	8
project approvals to June 30, 1919	51	7
Roads—		
appropriations, 1917–1921, by States, table	31	7
bond issue, voting	51	8
building—		
available appropriations, and expenditures, 1918	20	4
1919, comparison with other years	36	1, 11
equipment, War Department gift to States	50	15
in National Forests	32	16
labor requirements	25	3
Bureau, concrete ships, testing for Shipping Board	15	7
care and maintenance, use and value of drag	17	9
conference, Mar. 1, 1919	33	1
construction—		
1919, comparisons	36	1, 11
contracts, 1919	43	8
resumption and extension	20	1
resumption after war	43	8
work, reduction by war	15	7
cooperative construction, statement of Secretary	19	2
dragging, methods and value	18	20
drainage—		
etc., problem studies	24	14
necessities and methods	17	3
Federal-aid—		
act, amended	36	1, 11
cooperation of States	20	3
expenditures from July, 1916, to October, 1918	15	7
projects and cost, April, 1919	42	8
record for May, 1919	46	8
good, need of firm foundation, and drainage	32	15
improved—		
influence on school attendance	40	16
savings in Wisconsin	51	8
largest appropriations ever made, table	32	1, 7

Subject.	No.	Page.
Roads—Continued.		
laws, letter of Secretary Houston	43	1, 13–14
maintenance, use of drag	16	8
military, first consideration by highways council	6	2
National Forests, construction and mileage	22	9
necessity for drainage	32	15
repairs	39	4
rural post, broadening of definition	32	1
use of Army trucks	40	15
work—		
and appropriations, 1919	31	1
approval by Secretary, June, 1919	51	7
in March, 1919	37	8
in Pennsylvania	39	12
restrictions removal	17	12
Roadsides, tree planting, Michigan	49	7
Rodents—		
control by poison	46	12
extermination—		
costs, etc	14	9
in Montana	13	7
in West	7	7
saving of crops	8	7
injuries, and killing	36	14
injury to range forage	28	1–2
ROMMEL, GEO. M., statement on pork production	50	1, 5
"Rooster Sunday," observance	50	11–12
Roosters—		
elimination from flock	10	5
	44	12, 15
killing	50	11–12
Root-borer, grape, control	38	14
Root-knot, control studies for South	31	3
Root-rot, tobacco, cause	38	15
Roots, home-grown, storage	5	10
Rootworm, corn, control methods	26	24
Rope work, value in agricultural training	52	5
Rosette, injury to pecan trees, control studies	32	14
Rot—		
heart, cause of western hemlock decay, control	17	10
pea-root, injuries	48	6
stem-end—		
of watermelon, treatment	43	4
watermelon, preventative	46	5
	47	2
Rotation—		
crop—		
for control of eelworm disease	12	7
for eelworm control	35	15
for sheep pasturage	50	8
value in control of cucumber and melon diseases	21	12
Rotations, crop increase in South	17	7, 8
Rots, tree, admission by wounds	14	15
Roup, poultry disease, cause and control	35	11
Ruffed grouse, protection	16	7
Rural heather, typhoid fever control	19	5
Rural life, discussion by Secretary Houston	42	2
Russian farming methods, exhibitions by Department	23	1
Rust—		
black-stem—		
control by barberry destruction	37	15
control by barberry quarantine	40	8
Rust—Continued.		
cotton, from red spider, control	6	4
wheat—		
infection from barberry	9	13
life history, and control	31	5
Rye—		
Abruzzi, planting in fall	5	7
acreage—		
and production, 1918	39	16
increase, suggestion	5	6
comparison with wheat as to Hessian fly	39	3–4
conference in Chicago, July, 1918	2	2, 6
improved variety, yield, etc	27	10
land adaptable	40	12
pasture for hogs	2	2
place in agriculture	30	3
production increase, 1910–1918	27	24
stocks—		
for 1918	10	13
on Oct. 1, 1918	14	2
supply, in May, 1919	45	7
Saccharin, classification as adulterant	14	11
Sale, game, laws and migratory bird treaty act	4	8
Salt, dairy cows	10	7
Salt-brine, treatment of eelworm infested wheat	12	7
Saltbrush, rosy, troublesome weed	44	14
Saltbrushes, value of respective species	44	14
San Clements Island, Calif., quarantine for scab control	36	12
Sanitary habits, children's credit marks	44	16
SARTOR, ELTON, pig-club champion for United States, sketch	22	6
Satsuma orange, varieties and production	25	6
Sausage—		
cottage cheese, ingredients	20	2
pork, formula for home making	20	8
Sawdust, use in poison for cutworms	24	13
Sawmills, portable, operation methods	28	7
Scab, cattle, dipping for control	29	12
Scale—		
fluted, destruction by ladybird	24	14
San Jose—		
control	31	15
by spraying	39	6
fruit trees affected by	31	15
School—		
children, need for warm lunches	40	16
exhibits, patches, and war savings stamps	13	6
grounds, improvement	39	6
kitchens, note	3	7
lunch, object lesson, value	46	8, 12
lunches for children	49	6
traveling for teaching thrasher work	47	4
Schoolhouses, rural, improvement, description, etc	17	4
Schools—		
credit for home work	10	2
extension, for beekeepers	6	8
field, for citrus growers	44	16
movable, use of motor trucks in South	16	6
summer, in Arkansas, popularity	37	15
support during war	7	4
Scotland—		
live-stock situation, note	14	8
rat control, successful campaign	5	5
Scoutmasters, cooking lessons	51	6
Scrub—		
cattle, elimination	46	13
live-stock, elimination	45	10
Scrub-free area, comparison with tick-free area	35	16
Sealing, silage, to prevent spoilage	8	5
Seaweed, value for fertilizer	39	12
Secretary—		
visits to drought sections	8	7
See also Houston, D. F.		
Seed—		
alfalfa—		
chalcis fly control	37	16
prices, 1916–1918	25	13
yield on Yuma project	43	3
bean—		
disease-free, saving	6	5
selection in field	5	11
beans—		
and peas, destruction by weevils in storage	4	7
development and distribution	17	3
buying, cooperative saving	47	13
clover, saving	44	6
corn—		
care and tests	24	7
census by farm bureaus	11	8
community testing, cost	34	6
distribution in New York	11	7
for Iowa farmers, work of county agents	6	5
growing by corn clubs	43	12
points of excellence	3	8
preparation	35	7
selection and keeping	3	1
selection and storage	10	4
selection in field	1	11, 16
	5	6
	7	8
selection, picking, drying, and protection	1	3
supply, 1919	27	20
testing and saving	29	7
testing in South Dakota	29	15
cotton—		
crop value, 1918–1919	30	12
storage and care	14	10
field, American, need of Central Empires, 1920	41	1, 5
foul, sale prevention	50	5
grain—		
injury by smut-control treatment	11	7
loans in drought areas	12	3
loans in Northwest	42	4
loans to farmers	14	12
	25	7
sorghum, selection from field	5	9
treatment with formaldehyde for smut	5	9
Growers' Association, organization	39	6–7
oats, treatment for smut control	34	6
peanut, selection by hand picking	14	11
potato—		
selection at harvest time	5	10
treatment and planting	35	6
potatoes—		
farm grown, guarantees	9	12
selection	51	8
purebred, value	39	6
red clover, shortage, 1919	27	24

Subject.	No.	Page.
Seed—Continued.		
saving—		
and storage	14	10
note on	2	3
selection in garden, directions	5	14
storing and protection, note	6	6
sugar beet—		
conservation	27	24
importation increase, 1910–1918	22	7
planting by boys and girls for sirup	4	4
production	34	13
supplies, forecast for 1919	26	14
sweet clover, production	28	7
sweet corn, curing and care	6	10
sweet sorghum, value and harvesting methods	26	22
tall fescue, scarcity	44	4
timothy and clover—		
remarks	3	7
supply in 1918	3	7
treatment for control of cucumber diseases	21	12
vegetable—		
crop, promising	1	8
production survey	3	7
saving in home garden	5	2
saving, note	5	7
vegetables, production in Holland	41	1,5
western yellow pine, saving	5	13
wheat—		
hot-water treatment for loose smut	5	8,9
selection	9	13
selection for yields	4	1
treatment for eelworm infection	12	7
Seeding—		
tall fescue, directions	44	4
wheat—		
suggestions	4	1
time and method	5	15
Seeds—		
American, foreign demand	33	14
clover, grass, and vegetable, investigation	25	1
garden, home-grown, saving for next crop	5	14
increased production during German war	25	2
labeled	37	1,11
production, development by war	13	4
protection—		
from heat	1	5
from insect pests	5	14
requirements	37	1,11
vegetable, imports and studies	13	7
Seedsmen, agreement on labeling	37	1,11
Self-feeder, hogs	8	4
Self-feeders—		
pig, building by club boys	46	10
value in hog raising	8 14	4 13
SELLERS, CLARENCE, pig raising record	52	14
SELVIG, C. G., cattle-tuberculosis letter	50	3
Serbia, assistance by farm bureaus of States	44	14
Serum—		
hog-cholera—		
improvement by Federal supervision	22	16
increased use	7	1
Serums, manufacture, regulation	7	1
Sewing—		
clubs, girls', work in Indiana	40	9
demonstration, in Arizona	49	6
Shade, need for hogs	49	3
Shales, potash source	14	1
Shark, food value of meat	39	10–11
Shearing—		
sheds in National Forests	5	11
sheep, contests	44	15
Sheep—		
breeding—		
improvement, shown at fairs	14	5
on western ranches	52	16
care—		
and feeding	17	8
necessary for profit	46	12
clubs, cooperation in South	11	8
community raising	39	9
decline since 1914	46	1
decrease in France	52	3
experiment farms, wool clip	44	16
farming—		
for wool and mutton	50	13
system	50	3
feeding—		
on forage crops	41	2
with soy beans, gains	14	15
field men's conference	3	6
flock—		
reestablishment for 1918	9	2
size for beginners	8	4
starting, early fall	8	1
flocks, culling to increase production	1	8
grazing on cut-over forest lands	3	7
growing for wool and mutton	43	3
herding by girls	35	13
industry—		
establishment in North Dakota	29	6–7
need of qualified shepherds	47	1
lamb crop, maximum, hints	52	16
loss by dogs, State control	29	1
number, estimates	6	5
pasturage, use of ditch banks	29	5
pasture change	50	8
production, increase of interest	1	6
profit per year in keeping	35	12
raisers, organization	5	13
raising—		
for wool and mutton	40	11
importance	45	1
in New England	44	16
in Louisiana	47	13
in Tennessee and Kentucky	37	14
increase in West	45	16
increase with care	34	14
methods and suggestions	40	11
on farms, equipment	10	6
receipts, August, 1917, 1918	9	9
removal from drought regions to California	15	7
shearing—		
contests	44	15
sheds in National Forest	5	11
usefulness in destruction of weeds	17	9
value, increase by breeding	31	11
Western ranches, study	52	16
world numbers, United States percentage	52	1
Shepherds, qualified, need in sheep raising	47	1
Shingles, decrease of 1917 cut	37	4
Shipbuilders, milk supply	2	6
Shippers—		
aid in weevil control in corn	41	8
produce, use of weather forecasts	14	13
Shipping—		
association—		
organization	50	2
cooperative, work	29	15
Board, request for aid in foreign markets	21	1
corn, maximum loads increased	1	9
cooperative, Indiana hogs	50	5
hog, cooperative	27 41	18 10
improvement of packing	47	5
Ships, concrete, tests by Roads Bureau	15	7
Shocking corn, care, to prevent waste	1	8
Shoes, wearing tests	9	12
Shoulders, home curing, methods, and brine formula	20	8
Show windows, agriculture displays	16	7
Shucks—		
corn, value, in protection from weevil	3	1
value in protection of corn ears	6	11
Sidewalks, construction, control by War Industries Board	12	2
Silage—		
corn, early planting advantages	32	8
packing, importance of	2	5
sunflowers	45	14
use with leguminous feed	36	7
value as cattle feed	31	11
winter feed	7	3
Silos—		
building in Virginia	34	7
filling and sealing directions	8	5
increase and number in Wisconsin, 1918	38	7
increase in Utah, 1912–1918	35	13
practicability and value	35	5
Sirup—		
cane—		
growing and mills for	39	5
production increase	29	15
making from sweet potatoes	28	6
manufacture by breweries	40	15
production from grapes	32	4
sorghum, making by farm girls	24	6
standards, change proposed	33	9
sugar-beet, beet seed planting by boys and girls	4	4
Sisal, production promotion	35	13
Skim milk, utilization	49	7
Skins—		
animal, removing, cooling and curing	5	7
stocks—		
and trade reports	38	2
December 31, 1918	34 35	3 11
increase	46	8
Mar. 31, 1919, with comparisons	41	12
on hand, Jan. 31, 1919	36	2
wild animals, sale	8 29	7 14
Slugs, spotted garden, destruction methods and poisons	20	8
SMITH, C. B., statement as Chief	27	7

Subject.	No.	Page.
SMITH, ROLLIN E., on wheat grades	36	3
Smut—		
bamboo, quarantine	4	6
cereal, reduction by seed treatment	31	14
control, work of Department	10	14
flag—		
control by quarantine	32	1
wheat disease in Illinois	43	6
grain, losses and control	6	14
loose, control in wheat	5	8, 9
wheat—		
in Pacific Northwest	36	4
spread, and control	36	4
Smuts—		
cereal, control work	10	7
control by seed treatment	33	1, 6
danger to corn in planting	3	1
grain—		
control	1	11
control cooperation	10	4
injuries, control cooperation	33	1, 6
losses in New York	10	15
prevention	1	11
wheat, control methods	5	9
Soapweed, use as feed in drought	3	1
Soda, nitrate, sale to farmers	35	12
Soft drinks—		
content studies	41	16
sugar substitutes	1	7
Soil—		
acid, improvement and methods, 1918	21	2
artificial inoculation	11	4
bacteria, need for leguminous crops	11	4
diseases, control by sterilization	38	8
erosion, injuries and control by terracing	21	11
fertility improvement, and food-production	21	2
preparation for fruit trees	31	15
pulverizing in plowing	32	8
surveys—		
area increase, 1918	21	3, 5, 10
war work precedence	14	12
transfer for inoculation	11	4
treatment for potato-wart control	43	13
Soils—		
adaptability to fruit raising	32	5
improvement by sweet clover, methods	25	10
wheat, requirements	4	6
Soldiers—		
beekeeping instruction	49	6–7
farming studies	46	1–2, 9
German names in United States Army	14	15
return to farm work	35	1, 16
	36	13
return to farms	43	2
Sorghum—		
grain, seed selection from field	5	9
sirup—		
making by farm girls	24	6
production increase	29	15
sweet—		
planting time and methods	35	4
seed value and harvesting methods	26	22
variety selection	35	16
Sorghums—		
adaptability	35	16
early and dwarf, adaptability to Texas	16	2
Sorghums—Continued.		
grain—		
drying	1	15
harvesting and storing	1	15
silage value, yield, etc	38	6
South—		
adaptability for poultry	43	2–3
broom corn, production increase, 1919	13	7
sheep-club organization	11	8
South America—		
hogs, imports	52	1
introduction of pure-bred live stock	47	14
South Carolina—		
agricultural advisers for draft boards	10	12
asparagus growing	43	16
bird laws under treaty act	4	8
cattle-tick quarantine removal, letter from Secretary Houston	21	7
clover growing results	45	10
cotton-yield increase	21	7
live-stock improvement	46	13
pork-production increase	52	12
stock and crop improvement	41	10–11
wheat-production increase	22	6
South Dakota—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
potato yield	43	10
seed-corn testing	29	15
Southern States—		
food and farm products	25	12
hog raising	14	11
meeting shortage of farm labor	5	5
suggestion for increases in crops	5	6
winter gardens	1	4
Sows—		
breeding, number in United States, Apr. 1, 1919	41	14
selection for breeding	10	13
tuberculous, healthy pigs	52	13
Soy beans—		
adaptability of mellow loam	17	11
feeding value	14	8
forage crop for lambs	49	4
ground, value for pigs	13	5
Hahto, use as vegetable	34	13
pasture for live stock	14	13
planting, time and methods	35	4
	40	5
protein feed for hogs	2	2
sheep feeding, gains	14	15
soil requirements	13	5
value as stock feed and fertilizer	6	7
yield average	13	7
Spaghetti, standards	52	15
Spider, red, cause of cotton rust, control	6	4
Spray, tomato-blight control, formula	50	12–13
Sprayer, potato, cooperative purchase	47	16
Spraying—		
forage crops, directions	44	2, 15
injury to stone fruits	27	21
orchard—		
cost and value	27	4
importance, note	26	15
in Tennessee	29	7
San Jose scale	31	15
San Jose scale in South Carolina	39	6
scale control	27	15
vegetation, army-worm control	44	2
Sprays—		
army worm, formulas	44	2, 15
cherry trees, formulas	52	11
fruit, facts regarding	3	8
Squirrels—		
extermination as grain pest	8	8
ground—		
destruction in Idaho	28	5–6
extermination	14	9
Stackers, hay, making and use	44	4
Stacking—		
peanut, directions	6	12
wheat, practicability and value	40	1
STALLING, MONNIE, canning record	44	10
Standardization, necessity in marketing	43	3
Standards—		
corn meal, hearings	14	7
milk and cream	44	3
Sea Island cotton, preparation by Department	5	8
Starch—		
making, use of spoiled potatoes	14	12
milk explosion, investigation	44	8
"Stars and Stripes," citation on rat control	8	5
Steam, use in soil sterilization	38	8
Steel, need in farming	5	12
Steers—		
beef, prices on foot	49	2
fattening, supplemental feeds	51	2
feeding on corn	37	4
roughage for fattening	33	16
Sterilization—		
dairy utensils, necessity	40	7
value in soil diseases	38	8
Sterilizer, dairy, home-made	45	2
Stock—		
feed—		
rations for wintering	26	16
soy-bean value	6	7
pasturing on meadows	6	10
raising—		
on cut-over lands	32	13
recommendation for sugar-beet growers	6	11
Stockmen—		
aid to county agents, Washington	46	10
benefits by animal destruction	43	5
benefits of tuberculosis eradication	52	13
drought-stricken in Southwest	11	7
loans, plans of War Finance Corporation	5	2
Stocks, doubtful, warning	34	16
Stockyard—		
definition	1	1
licenses, proclamation	8	3
Stockyards—		
charges, excessive, prevention	1	1
definitions of terms	1	1
regulations, text	1	1
restrictions pending receipt of licenses	4	3
river-shipped stock, location and capacity	36	14
Stomach worms control in sheep	49	4
Stone crusher, community ownership	28	7
Storage—		
apples, note	6	5
cabbage and onions, suggestions	20	5
cold, remarks	26	6
cooperative warehouses	44	7
grain, portable granaries, description and construction	1	15

Subject.	No.	Page.
Storage—Continued.		
grain sorghums	1	15
home-grown roots, etc., importance, notes	6	3
house—		
sweet-potato, construction, ventilation, etc	5	2
sweet-potato, essentials	1	12
houses—		
"patented," for sweet potatoes	31	6
value for sweet potato	50	9
ice, methods	22	14
potato	20	3
potatoes, requirements	52	7
seed corn importance	3	1
	10	4,5
sweet potato—		
crop	5	1
directions	1	12
in Florida	43	9
modern methods	45	13
turnips, note	6	5
Straight head, rice, study and control	1	8
Strainers, value of filter cloth, etc	39	13
Straw—		
use in wheat winter-killing control	21	1
utilization	5	7
Strawberries—		
drainage needs	39	14
growing methods, Eastern States	41	11–12
growing methods in West	41	12
planting, care, etc	39	14
soil requirements	39	14
varieties, for various States	40	14
winter production	14	14
Stream, flow, measurement	45	6
Streams, source of electricity	45	6
Strength, National, source in people	52	12
Stripe disease, barley, control	1	7
STUART, GOV. HENRY C.—		
appointment on price-fixing committee	1	10
	2	6
letter from Herbert Hoover	10	3
retirement	33	12
Stump land, cultivation *vs.* pasturing	9	2
Stumps, clearing, methods	6	15
STURTZ, ROBERT E., citation on accredited herd	47	2
Substitutes—		
sugar, in soft drinks	1	7
wheat flour, chemical composition	12	1
Sugar—		
beet—		
and cane, combination	26	19
crop output, 1918–1919	38	12
beets, production cost in Colorado	26	24
cane—		
acreage, estimate	6	5
moth borer, parasites collection	6	9
consumption, per capita	48	5
crop, estimate, from averages	14	8
Florida production, 1919	29	2
forecast, 1919–1920	52	15
maltose, description and uses	40	15
maple, making by Vermont boy	37	6
production—		
average	43	15–16
in Philippines, increase	14	14
stock reported, 1918	1	9
stocks on October 1, 1918	14	3
substitute in canning, use of corn sirup	5	13
substitutes in soft drinks	1	7
Sugar—Continued.		
world production, forecast for 1919	26	14
yield per ton, sugar cane and beets	12	7
Sugar-beet—		
farms, need of live stock	6	11
seed, conservation	27	24
Sumac—		
demand increase	49	3
gathering, profit	1	13
Summer schools, Arkansas, popularity	37	15
Sunday farm work, commendation	2	6
Sunflowers, silage use	45	14
Supplies, cooperative buying	52	11
Surveys, soil, war work precedence	14	12
Swamp lands, reclamation progress	6	14
Swamps, land clearing, burning of brush	14	11
Swarming control, aid to beekeepers	52	5
Sweet clover—		
adaptability for corn-belt farms	26	19
values in soil improvement	25	10
Sweet potatoes—		
conference, cooperation	35	9
cooperative selling in Florida	41	10
crop yields	28	11
digging and handling	37	10
growing, suggestions	31	2
handling and hauling, suggestions	1	12
handling and storage, precaution	5	1
marketing through field agents	36	13
production, 1915–1918	27	11
rank among Southern crop	38	12–13
storage—		
building	43	15
directions	1	12
houses	50	9
in South	43	9
modern methods	45	13
necessity	27	21
storage house—		
construction, ventilation, etc	5	2
plans	31	6
studies	35	9
value increase, 1910–1919	36	2
weevil control	29	10
Swine. *See* Hogs.		
"T. B." *See* Tuberculosis.		
Tags, trees, preparation, new method	1	9
Take-all—		
control by quarantine	32	1
disease of wheat, out-breaks	47	14
wheat disease in Illinois, studies	43	6
Takoma Park Club, membership and scope	41	16
TAYLOR, DR. H. C., appointment	34	1, 14
Teachers, school, aid to community driers	30	11
Teeth, brushing, credit marks for children	44	16
Telegraph, wireless, use in forest fires	37	2
Telephone, wireless, use in National Forests	43	12
Tenancy, farm, increase, investigation	45	7
Tennessee—		
agricultural advisers for draft boards	10	12
bird laws under treaty act	4	8
city-garden work, organization and methods	17	13
cooperative selling of live stock	39	6
farm labor supply	5	5
profits to club boy on pigs	31	14
Tennessee—Continued.		
pruning and spraying orchards	29	8
sheep raising, progress	37	17
wheat-acreage increase	15	4
Terraces, use to control erosion	14	11
Terracing—		
agents' work in Louisiana	29	7
control of erosion	14	10
control of erosion, Louisiana	47	13
value in soil-erosion control, methods, etc	21	11
Testing—		
cattle for tuberculosis	49	1–2, 8
cows, benefit to creameries	45	15
Texas—		
agricultural advisers for draft boards	10	16
army-worm outbreak	44	1, 15
bird laws under treaty act	4	8
boys' clubs, food-production work	9	12
boys' dairy club	44	10
cattle—		
removal from drought section	9	7
tick eradication	48	3
cotton-gin fires, 1918	9	12
county funds for tick work	44	13
Dallas County, road bond, vote	51	8
farm labor supply	5	5
grain sorghums, adaptability	16	2
hog raising, profits from one sow pig	30	12
pig raising—		
and shipping	27	18
profit	27	18
pig-club work and championship	22	6
pink cotton bollworm	29	11–12
pink-bollworm eradication	27	19
Thinning, fruit, advantages	44	12
Thistles, Canada, control	38	4–5
Thrashermen, education in duties	44	12
Thrashers—		
cooking for, regulation by women, Iowa farms	6	8
instructions in use of	47	4
Thrashing—		
custom work, and cooperation	44	5
machines, care and repair	38	9
methods, prices	27	3
ring, benefit to farmers	44	5
teaching—		
in schools	44	6, 12
machine operation	44	12
use of machinery	47	4
Thrift—		
farmers' aid	38	1, 14
kitchens—		
continuance after war	32	12
for foreign women	44	15
leaflets Agriculture and Treasury Departments	41	1–2
stamps, bonus for farm workers	10	2
work of club members	46	12
work of Federal Departments	44	11
Thrips, onion, control methods	31	10
Thumps, disease of young pigs, cause	52	13
Tick—		
cattle—		
control by dipping	48	3
control in Arkansas	48	3
control in Oklahoma	48	5
control progress	41	9
control work	29	16
	48	3, 5
control work, Mar., 1918	40	16

Subject.	No.	Page.
Tick—Continued.		
cattle—continued.		
eradication	31	15
	44	13
eradication, Alabama law	40	8
eradication for cattle improvement	41	11
eradication gains in Texas	48	3
eradication progress	14	12
extermination in Oklahoma	8	6
extermination progress	7	7
quarantine area reduction, 1918	18	12
quarantine in North Carolina	51	4
statement of Arkansas Governor on eradication	31	15
control by cattle dipping	30	16
ear, spinose, injuries and control	22	5
eradication—		
by county funds	44	13
in July	47	14
necessity	46	3
progress exhibit in Georgia	16	6
Texas, opposition	34	1
work, new record	44	15
"Tick-free—		
South," advance	33	13
States, predictions, 1919–1923	34	2
cattle—		
control by March dipping	29	4–5
dipping suggestions	35	12
eradication in Oklahoma, etc	5	10
March dipping for control	33	14
eradication, motion-picture films	51	7
Timber—		
conservation and increase	44	1, 14
demand from army	37	5
preservation	52	9
relation to land prices	51	3
supply decrease	44	1
surplus, farm sales and profits	21	7
value and determination	40	6–7
Timothies, varieties, seed development	23	7
Timothy—		
per cent of hay production	30	13
seed, stocks and shipment	3	6
Toads, use against webworm	3	4
Tobacco—		
acreage estimates, 1918	33	10
beetle, distribution by commerce	41	13
beetles, control of	37	11
Burley, root-rot resistant	38	15
leaf, stocks on hand	27	20
overproduction	30	2
production—		
1917, and estimated crop for 1918	1	13
costs, studies	45	4
stems, use in fumigation	49	4
world crop, United States per cent of, 1909–1913	14	8
Tomato—		
and peanut soup, recipe	10	9
growers, county organizations, federation	47	12
value for food, and relationship	37	11
Tomatoes—		
acreage contracted for	8	8
canned, sale for tax paying	40	10
early name, and uses	36	9
land requirements	36	16
Tools, care of	44	2
Tractor—		
Fordson, report by Gerkes, discussion by Assistant Secretary Vrooman	5	2
plowing, turning problems	50	1–2
Tractors—		
demonstration	52	12
farm—		
advantages and disadvantages	34	7
development methods and progress	42	11–13
production in United States, 1916, 1917, 1918, and distribution	17	13
girls, in Kansas, offer services	5	3
value in Louisiana farming	50	9
Trade commissioner, agricultural, duties	44	2
Trader, stockyard, definition, and regulations	1	1
Trailers, use with motor trucks	13	1
Trails, building in National Forests	32	16
Transportation, eggs, China to New York City	36	13
Trappers, work on forest ranges	12	5
Travel, difficulties of county agents, examples	6	10
Treasury—		
Department—		
statement in regard to grain loans	1	1
thrift work	44	11
Secretary, circular on grain loans to farmers	5	4
Treaty, game protection, U. S.-Canada	4	1
Tree—		
planting, memorial	35	2
wounds—		
diseases arising from	14	15
protection	14	16
Trees—		
dead and unsightly, use as fuel	10	10
lumber, in various States	10	10
memorials, of soldiers	45	8
orchard, spraying and pruning	43	9
planting in farm gulhes	31	3
roadside, planting in Michigan	49	7
shelter-belt, growing methods	34	3
surplus, arsenic poisoning	29	9
tagging, new method	1	9
tribute by Assistant Secretary Ousley	35	2
young—		
sacking for locust control	36	13
protection from locusts	44	8
Trichinae, pork, studies	52	13
Trocar, use for cattle bloating	45	3
Truck—		
crops, reports, value	19	16
"Knapp Agricultural," work in Alabama	16	6
Trucks, motor—		
distribution to States, conditions	42	1
use in marketing hogs	1	6
	36	15
See Motor trucks.		
Tuberculin tests, cattle, official certificate	48	2
Tuberculosis—		
animal—		
eradication progress	32	12
insidiousness	34	13
testing work	50	15
Tuberculosis—Continued.		
animals, killing, indemnity, etc	11	1
cattle—		
certification	9	2
control help by Department	22	9
control in Illinois	47	2
control work	34	5
control work, 1918	25	2
eradication work	51	5
letters	50	3
shipments from Illinois	52	4
tester's certificates	48	7
testing	50	3
eradication—		
benefits	52	13
remarks	49	1–2, 8
herd testing by Department veterinarians	36	14
live-stock, State aid in control	33	14
test—		
cattle, benefits	47	2
value in eradication	49	1–2, 8
testing—		
calves	45	4
interstate regulations	45	9
Tuberculosis-free, Herd Association, Wisconsin	52	12
Tuberculous cattle—		
eradication	48	1
fraud prevention	40	3
Tulip bulbs, planting time	10	11
Tulips, growing indoors	14	4
Turf, disease of lawns	47	16
Turkeys, raising in South	43	3
Turnips, storing, notes	6	5
Twenty-eight-hour law, live-stock regulations	42	14
Twilight harvest crews—		
Kansas harvest, 1918	9	16
work in wheat field	8	8
Twine, binder—		
consumption	35	13
new fiber sources	24	2
Typhoid fever, control methods	19	5
Utah—		
agricultural advisers for draft boards	10	16
bird laws under treaty act	4	8
farm work by girls	27	21
hog improvement	32	12
regulations, cattle shipments	52	4
saving orphan lambs	50	6
silos, increase, 1912–1918	35	13
sugar-beet growing	50	6
"Vacation land," free use of National Forests	51	7
Vaccination—		
hog, Department advice	9	14
value in control of hog cholera	31	12
Vagrancy, control in Southern States	5	3
Vats, cattle-tick control	48	5
Vegetable seed—		
crop, promising	1	8
investigation	25	1
production, distribution	13	4
Vegetables—		
canned, sale by War Department	38	12
canning for soldiers	12	7
drying, increase by war	32	11
feeding to chickens, value	1	12

Subject.	No.	Page.
Vegetables—Continued.		
growing—		
among fruit trees	31	6
for winter storage in South	1	4
package form, label requirements	42	16
planting-dates, table	1	5
seed-production survey	3	7
shipment, loading Climax baskets	3	6
stocks on hand, Nov. 1, 1918, with comparisons	19	6
time necessary for maturing, list	1	5
winter, storing notes	7	7
Velvet beans—		
feed for hogs	2	2
feeding to dairy cattle	8	8
Venezuela, at National Exposition	38	6
Venison, preserving and cooking	24	5
Ventilation, poultry houses	49	8
Vermicelli, standards	52	15
Vermont—		
agricultural advisers for draft boards	10	16
bird laws under treaty act	4	8
Veterinary, biological products, testing	7	2
Victory farms, designation, and wheat quota	12	6
"Vinegar bees," description	43	15
Vinegar, cider, manufacturing methods and care	11	5
Virginia—		
agricultural advisers for draft boards	10	16
bird laws under treaty act	4	8
forest problems, conference	44	1, 14
poultry-club girl's profits	32	13
road—		
construction at Alexandria	15	8
projects, 1919	49	6
selling flowers and vegetables for French wounded	13	7
Volunteers, soldiers with German names	14	15
VROOMAN, CARL—		
discussion of tractor report	5	2
letter from Gen. Pershing	14	1
remarks on farmers in war	2	1
resignation	27	5
WADSWORTH, MRS. HERBERT, aid in horse raising	33	11
Walnut—		
black—		
demand and use	8	6
range and requirements	8	6
search by Boy Scouts	7	6
logs or stumpage, Army claim relinquished	18	20
Walnuts, saving and planting	8	6
War—		
American forces, farming school	46	1, 2, 9
Department—		
ruling on college men	3	4
wool sales, methods	28	16
farmers' pledges to Government	3	5
farming, farm bureaus' work	6	8
Finance Corporation—		
loans to farmers	1	14
plans for loans	5	2
fund campaign, appeal to farmers by Secretary Houston	15	2
gardens, increase	7	8
grain fields, as guideposts	6	8
heroes, memorial	37	3
War—Continued.		
Industries Board, soda nitrate importations	1	8
relation—		
of farmers	2	1
to weather, discussion	6	3
Secretary, letter on fruit pits and nutshells	21	11
work—		
aid by Forest Service	10	16
aid of farm bureau	4	4
aid of woodlands	39	15–16
organization, Minnesota	10	15
farm hands in	10	1
workers, training kitchen for	4	4
WARD, FLORENCE E., extension work, North and West, statement	24	4
Warehouses—		
cotton, licensing system	2	7
farmers' cooperative	44	7
grain, rule, hearings	46	8
Wart—		
potato—		
description, and warning	13	5
eradication	52	16
introduction and spread	44	8
study	12	6
warning to farmers	42	16
warning to potato growers	43	13
Washington—		
agricultural advisers for draft boards	10	16
bean growing, profits	43	10
bird laws under treaty act	4	8
champion calf	43	10–11
grain loans, allotments	12	3
wheat varieties	47	7
Water—		
farm supply, purity tests	22	2, 8
glass, use in preserving eggs	46	4, 9
ground, temperature studies	21	6
power receipts, National Forests, decrease	5	11
requirements—		
of cattle	40	4
of dairy cows	14	16
spring, uses and value	22	16
storing for electric power	45	6
supply, farm, pollution	42	14
Waterfowl—		
breeding, permits, etc	39	16
hunting, open season, various States	4	8
killing restrictions, various States	18	11
propagation, farms and preserves, provision	4	8
Watermelon—		
blue stem—		
not diseased	46	5
remarks	47	2
stem-end rot—		
prevention	47	2
preventive	46	5
Watermellons, treatment for stem-end rot	43	4
Wax moth, control	52	8
Weaning pigs, directions	44	7
Weather Bureau—		
aid given to war activities	18	19
aid to aviation	46	7
aid to naval airplane service	41	14
aids to over-ocean flights	41	4–5
Weather Bureau—Continued.		
development in West Indies	41	15
hurricane service extension	41	14–15
Weather—		
effect of war conditions, discussion	6	3
fire-breeding, warnings	8	7
forecasts—		
value for motor-route service	15	7
value in saving cattle from cold wave	15	7
value to shippers	14	13
Webworm, injury to alfalfa	3	3
Weeds—		
annual, wheat field infestation	1	9
destruction in pastures	32, 44	3, 6
harmfulness, note	3	4
Weevil—		
boll, control studies	51	4
corn, control by seed selection	3	1
cotton-boll—		
control territory	43	7
poisoning machine	51	7
injuries to legumes, control	18	5
sweet-potato, control	29	10
Wevils—		
bean—		
control by fumigation	1	13
origin and control	46	14
corn—		
and control	38	10–11
control by good shucks on ears	7	3
eradication in corn, shippers' aid	41	8
grain, control in seed corn	1	3
injury to alfalfa hay, control	26	17
pea and bean, control methods	4	7
Wells, dug, cleaning necessity and methods	20	4
West Indies, Weather Bureau, rehabilitation	41	15
West Virginia—		
agricultural advisers for draft boards	10	16
bird laws under treaty act	4	8
community cooperation, results	43	9
cooperative extension work	25	4
extension work and workers	17	10
farm—		
bureaus, help to Serbia	44	14
labor supply	5	5
forest problems, conference	44	1, 14
stock value, increase by breeding	31	11
Western regions, drought-stricken, grain loans to farmers	1	1
Wheat—		
acreage—		
increase	8	7
increase in Tennessee, 1918–1919	15	8
area—in India, decrease	45	8
clubs, boys', enrollment	14	13
conference in Chicago, July, 1918	2	2, 6
conservation by miners' families, Minnesota	8	8
crop, prediction for 1919	40	1
disease—		
caused by nematodes, control	5	1
from eelworm, control	12	1
diseases, in Illinois	43	6
durum, production and exports	14	13
European need, forecast for 1919	26	1, 13
exports, percentage of world crop	16	5
fall planting, loans to farmers	1	16

Subject.	No.	Page.
Wheat—Continued.		
fertilizing to produce big yield	5	16
flour substitutes, chemical composition	12	1
grades—		
factors influencing	36	3
Washington varieties	47	7
grading demonstration	31	8
grasshopper control	50	16
growers, grain loans	1	1
guaranty, part of Agriculture Department	36	8
harvest—		
increase, message of Secretary	2	7
voluntary work of city men	10	16
harvesting, school instruction	44	6, 12
identification, finger-print method	40	15
improved strains, development	5	13
increase in Argentina, 1891–1919	40	8
injury by jointworm, control studies	21	5
jointworm—		
habits, injuries, and control	17	6
injuries and control	38	16
land, plowing time	51	1–2
loose smut control	5	8
loss from smuts	33	1, 6
market inspection and uniformity	34	8
Marquis, popularity as spring wheat	6	5
moisture tests	38	7
per capita consumption, 1902–1911	16	5
plowing for, note	3	4
price—		
average, 1913–1918	13	1
guaranty, law enforcement	23	1, 3
guaranty, memorandum of President	6	4
guaranty, 1919, statement of Food Administration	20	8
proclamation by President	6	1
variation	27	21
prices, range, 1913–1917	14	9
production—		
forecast, for 1919	26	1, 13
in France, 1818–1917	40	12
increase in Iowa	12	6
increase in South Carolina	22	6
stimulation authorization	6	1
protection by barberry quarantine	28	7
protection from mice and rats	47	14
quota, Victory farms	12	6
rust, relation of barberry	31	5
seed—		
bed preparation, importance	6	6
importation prohibition	43	6
salt-brine treatment	35	15
selection, importance	9	13
seeding time and method	5	15
selection of soil and seed	5	6
smut, description, spread, control	36	4
smuts, control methods	5	9
smutted, percentage	33	1, 6
soils, requirements	4	6
sowing, acreage and conditions	13	6
spring—		
inspection, 1918, grades and amount	31	16
preparation for	5	6
States, surplus supply	14	14
stock increase, 1919 over 1918	40	7
Wheat—Continued.		
stocks—		
1918	10	13
Jan. 1, 1918, 1919	28	16
Mar. 1, 1918, 1919	36	7
on hand Dec. 1, 1918	23	6
on hand Nov. 1, 1918, with comparisons	19	6
on hand Oct. 1, 1918	14	2
reported, 1918	1	9
substitutes, investigations	9	12
supply, increase in May, 1919	45	7
surplus, supply located	14	14
"take-all" disease outbreaks	47	14
tillage, importance to yield	6	13
varietal survey, use and value	40	15
varieties—		
classification and methods	40	15
handicap to millers	47	7
selection, precautions	4	1
variety selection, precaution, note	5	3
watering, etc	29	12
winter, rolling, time and value	35	4
winterkilling—		
prevention by soil selection	6	13
prevention by use of straw	21	1
world crop, United States per cent of, 1909–1913	14	8
yield—		
increase	48	1, 8
per acre, 1899–1913	16	5
record, Washington in 1895	1	10
yields, increase by good seed	4	1
Wheats, spring, leading variety	46	13
Whey, feeding value for pigs	6	13
WILSON, A., study of garbage as hog feed	3	7
WILSON, PRESIDENT—		
letter on road construction	20	1
memorandum on guaranteed price of wheat	6	4
proclamation on stockyard licenses	8	3
proclamation on wheat prices	6	4
regulations for stockyard	1	1
urges support of schools	7	4
WILSON, THOMAS E., packers' agreement on marketing hogs	14	7
Wind shield, home-made, for lime spreader	6	11
WINEGERT, SAMUEL, beekeeping record	44	10
Winter—		
care of bees	5	3
gardens in South and North	1	4
supplies of food and wood	14	11
Wintering, bees in cellars	14	3
Winterkilling—		
bees, prevention	10	6
wheat	6 21	13 1
Wireless telegraph, use in forest fires	37	2
Wisconsin—		
agricultural advisers for draft boards	14	4
bird laws under treaty act	1	4
bulls, methods of use	29	9
cooperative service to farmers by merchants	25	3
farmers, purchase of pure-bred cattle	45	5
feed-production campaign	34	6
live-stock sales, cooperation	31	15
Wisconsin—Continued.		
Milwaukee County, saving by roads	51	8
surveys by children	29	8
Tuberculosis-free Herd Association	52	12
Wolves, hunting on forest ranges	12	5
Women—		
club marketing of home products	7	6
demonstration agents—		
number increase	4	3
remarks	35	10
foreign—		
aid by thrift kitchens	44	15
Americanization	24	14
teaching to cook	45	15
help in saving cotton	2	7
management of market	4	4
relation to selling farm products	36	15
rest rooms	44	9
selection and usefulness as meat inspectors	25	10
work and efficiency as cow testers	17	6
Women's Club, school lunches for children	48	6
Women's Clubs, meetings in demonstration kitchen	42	15
Wood—		
cutting and seasoning	9	3
density, measure of strength	52	7
distillation—		
industry in Mississippi	7	7
methods, improvement	47	6
elm, strength and value	9	11
fuel—		
committee, reorganization and scope	16	5
selling by weight	32	9
industries, help by forestry war work	47	5
preservation by treatment	29	13
products investigations, benefits of	47	5–6
strength, determination by density	52	7
substitute for coal	10	9
substitution for coal for fuel	11	3
utilization of waste	47	5
Woodcock, open season, various states	4	8
WOODDELL, JESSIE, tomato club work, Arkansas	40	16
Woodland—		
care, notes	32	11
definition	52	15
products, marketing helps and methods	21	4
Woodlands—		
farm, demands	39	15–16
protection for States	44	1, 14
Woodlot—		
application of term	52	15
improvement, directions	10	10
Woodlots—		
importance	32	1
trimming rules	28	3
value in protection of water supply	23	6
Wood-working, need of forest supplies	46	4
Wool—		
buyers' permits, reports, etc	51	1
choice, price quotations	48	4
clip—		
amount and price, 1918	30	13
sheep on experiment farms	44	16

Subject.	No.	Page.
Wool—Continued.		
conservation—		
Iowa community work	12	7
work	44	9
consumption—		
August, 1918	9	3
decrease, 1918	32	7
decrease, Feb. 1, 1918–1919	36	8
decrease in September	14	14
in April, 1918 and 1919	44	8
increase	18	23
increase, 1918–1919	41	4
May and June, 1918	1	13
cooperative pooling in New York, and profits	11	8
decrease in dealers' hands, March, 1919	42	9
increase, 1918	29	12
machinery—		
active and idle, percentage in United States	21	12
idle, decrease in 1919	41	8
increase in operation	52	4
increased use	46	8
per cent of idle looms, Feb. 1, 1919	32	7
per cent idle looms, Mar. 1, 1919	37	4
marketing—		
community work	52	12
conditions governing	35	6
Wool—Continued.		
pooling—		
advantages and profits	50	15
in Idaho	45	12
in Louisiana	47	13
in Missouri	52	12
price decline, forecast for 1919	26	14
prices, in Government report	45	8
production—		
estimate, 1918	13 15	2 8
farmers' war record	21	2
profits to farmers	51	1
sales by War Department	28	16
selling, cooperative	49	7
stocks—		
decrease reports by Markets Bureau	15	6
on hand, Dec. 31, 1918	30	13
statistics	3	8
unwashed, prices, 1912–1918	33	12
use decrease, November, 1918, with comparisons	23	6
Woolen mills, per cent idle, Jan. 2, 1919	28	16
Woolens, protection from clothes moth	14	5
Woolgrowers, contracts, repayment	22	8
Work stock, hardy, securing in Southwest	46	13
Workers, volunteer, in draught-striken section, Montana	6	2
Worm, clover, control in alfalfa	41	7
Worms—		
army—		
control by poison	48	4
control work in Florida	4	5
destruction	50	16
stomach—		
control in forage-crops	41	2
control in sheep	49	4
Wounds, tree, protection	14	16
Wyoming—		
agricultural advisers for draft boards	10	16
bird laws under treaty act	4	8
harvest labor by business men	8	7
purchase of pure-bred live stock	45	3
sheep care and herding	35	13
Yeast, wild, description and names	43	15
Yellows, alfalfa, control	47	14
YERKES, A. P., report on Fordson tractor, remarks	5	2
Yucca, use as stock feed	3	1
Yuma Irrigation Project, alfalfa acreage, 1917	43	3
Zinc, danger in preserves	3	3
"Zython," relation of Agriculture Department	42	4

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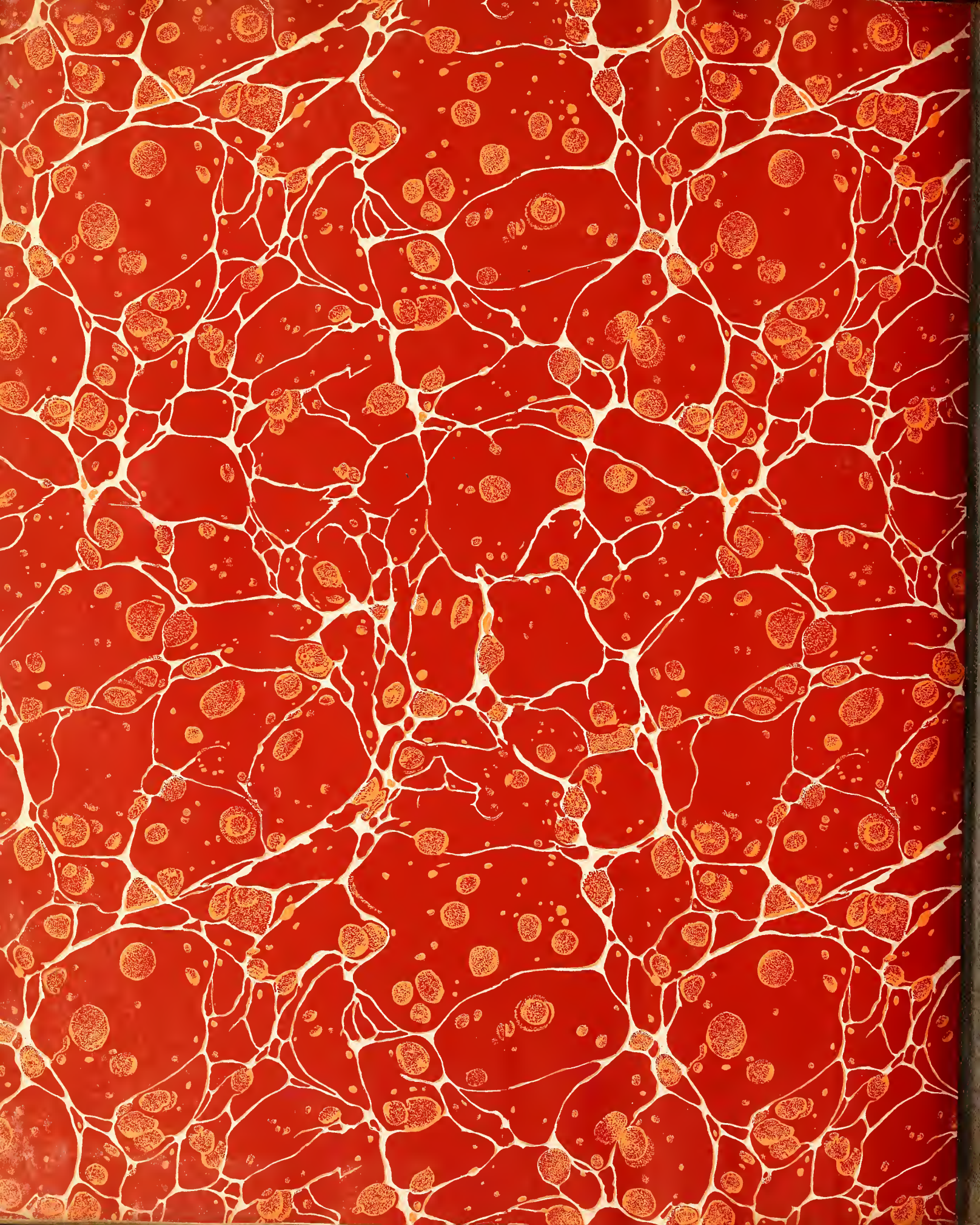

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